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1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 cents

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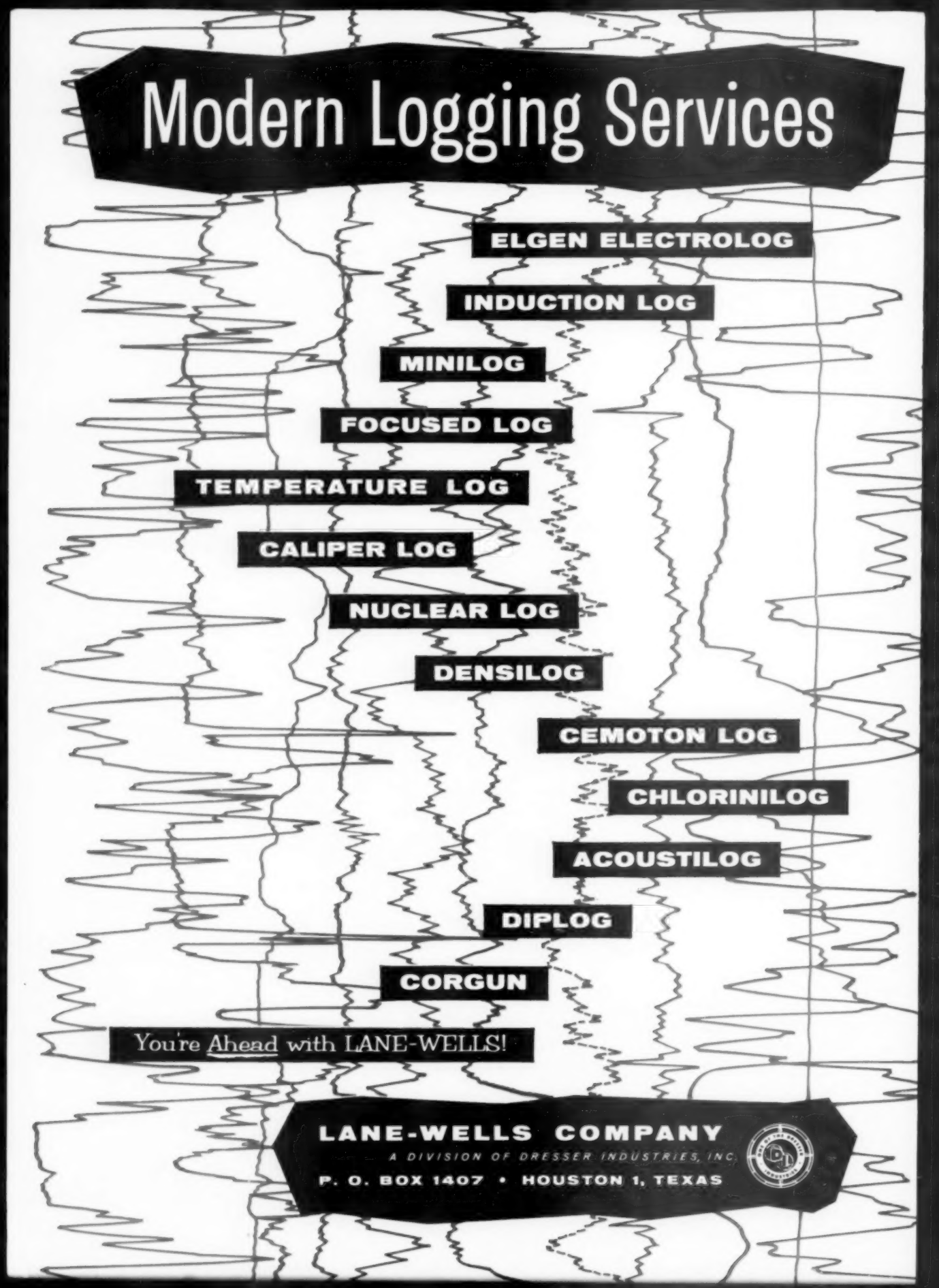
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INSIDE *Slant*

TOO MUCH HELP HURTS

Imports Administrator M. V. Carson feels that the domestic oil surplus results from too many helping hands.

He made this explanation recently at Houston:

"A fellow purchased a foreign car and was getting 30 to 40 mi. per gal. His friends, without his knowledge, started adding gasoline into the tank.

"Finally, he was bragging that he was getting 80 to 100 mi. per gal. Then his friends started siphoning gasoline out of the tank. The poor fellow didn't know what was the matter.

"This is more or less the problem with the present oil stock oversupply. We've got a lot of people helping us.

"There are some 30 conservation commissions in the U.S. setting allowables for states in varying amounts.

"I don't advocate for one minute that we have one central agency to control the allowables for the various states. But, like the fellow and the foreign car, I do say we have a lot of people involved in controlling the supply of oil."

It's true there are a lot of fingers in the pie. But only a few regulatory officials are to blame. Politics, not demand, influences their decisions.

LeRoy Menzing
EDITOR

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Views That Make News

Dear Sir:

I have read your article "Oil Maps Disaster Plans" (PW—Feb.12'60 p13), and in view of what other companies said about their plans, I guess our people here were overcome by an excess of security caution.

Actually, Standard of California has had an emergency alternate headquarters plan since 1950, located some 50 mi. from San Francisco. Provisions for microfilming and storing essential records of the company in facilities considerably removed from our headquarters offices in San Francisco likewise have been in effect for that time.

Whatever fault there might have been for the omission of these facts from your article certainly was not that of your excellent local news bureau, but was actually due to the noncommittal answers given your reporter some weeks ago.

R. G. FOLLIS
Board chairman
Standard Oil Co. of California

Dear Sir:

Your piece, "The Magic Music of Marginal Costs" [PW—Feb.12'60, p15], was one of the most lucid and entertaining explanations of the present oversupply problem that I have read.

It is somewhat difficult for me, who is far removed from the policy-making bodies of my company, to explain in simple language to dealers the underlying reasons for price disturbances. Your "fable" certainly will be used to good advantage in pointing out one of the reasons.

Of course, the principle of the fable can, with a slight twist, be adapted to the major-brand, cut-price service station dealer. In a territory such as mine, where high-volume stations are rare, the average dealer has a very difficult time subsisting on a 4.5¢ margin for gasoline. The better dealer can manage because of his selling abilities for other products and services. Unfortunately, it is usually the less capable dealer who cuts price as a desperation move; and he is generally the one who can least afford a reduced margin. . .

You should be proud of your publication. It is a fine one.

JOSEPH W. REISLER
Retail representative
Gulf Oil Corp.
Cornwall, N.Y.

Dear Sir:

That was a clever fable on the prune juice industry. . . I hope you will give the author a $5 raise.

JOHN W. WAGNER
Public relations director
Texas Mid-Continent Oil & Gas Assn.

Dear Sir:

This is a most timely article. . .

A. J. WELLIVER
Manager
General wholesale department
Sun Oil Co.

"At the present time, our industry appears to be improving. The picture, however, could change overnight if by government action we had the enactment of a national fuels policy, a cut in percentage depletion, a gasoline tax increase, or marketing regulatory legislation. Government actions are largely determined by the climate of public opinion. A public which doesn't understand the basic facts about our industry's issues can do us a lot of harm. Those who do understand can do the industry and themselves some good."

—K. H. SHAFFER
Board chairman
Standard Oil Co. of Texas

"At Standard Oil Co. of California, it seems that each mail carries more than one expression of concern from our stockholders that the atomic nucleus will soon displace petroleum as the principal source of energy in the United States. Some even go so far as to urge that we get our capital out of the oil business and put it all where it belongs—in atomics, of course.

"Even the most temperate of these people who write us are actively concerned lest nuclear power seriously threaten demands for certain petroleum products."

—WILLIAM A. MCAFEE
General sales manager, wholesale
Standard Oil Co. of California, Western Operations, Inc.

"Over-all, industry in 1960 will exceed all previous records in activity in [British Columbia]. To me, this means just one thing: Despite short-term market problems, industry can be spurred to great efforts by the forces of vigorous competition when the ground rules are fair and the long-term incentive exists."

—W. D. C. MACKENZIE
Western regional manager, producing department
Imperial Oil Ltd.

Big drilling news from Gardner-Denver

- Drawworks
- Crown blocks
- Traveling blocks
- Swivels
- Rotary tables
- Compounds
- Air compressors
- Mud pumps
- Air hoists
- Water pumps
- Centrifugal pumps
- Impact wrenches

Gardner-Denver is keeping pace with oil industry progress in the development of equipment today for the challenge of tomorrow. Ask your Gardner-Denver petroleum industry specialist about these great new products for deepest drilling.

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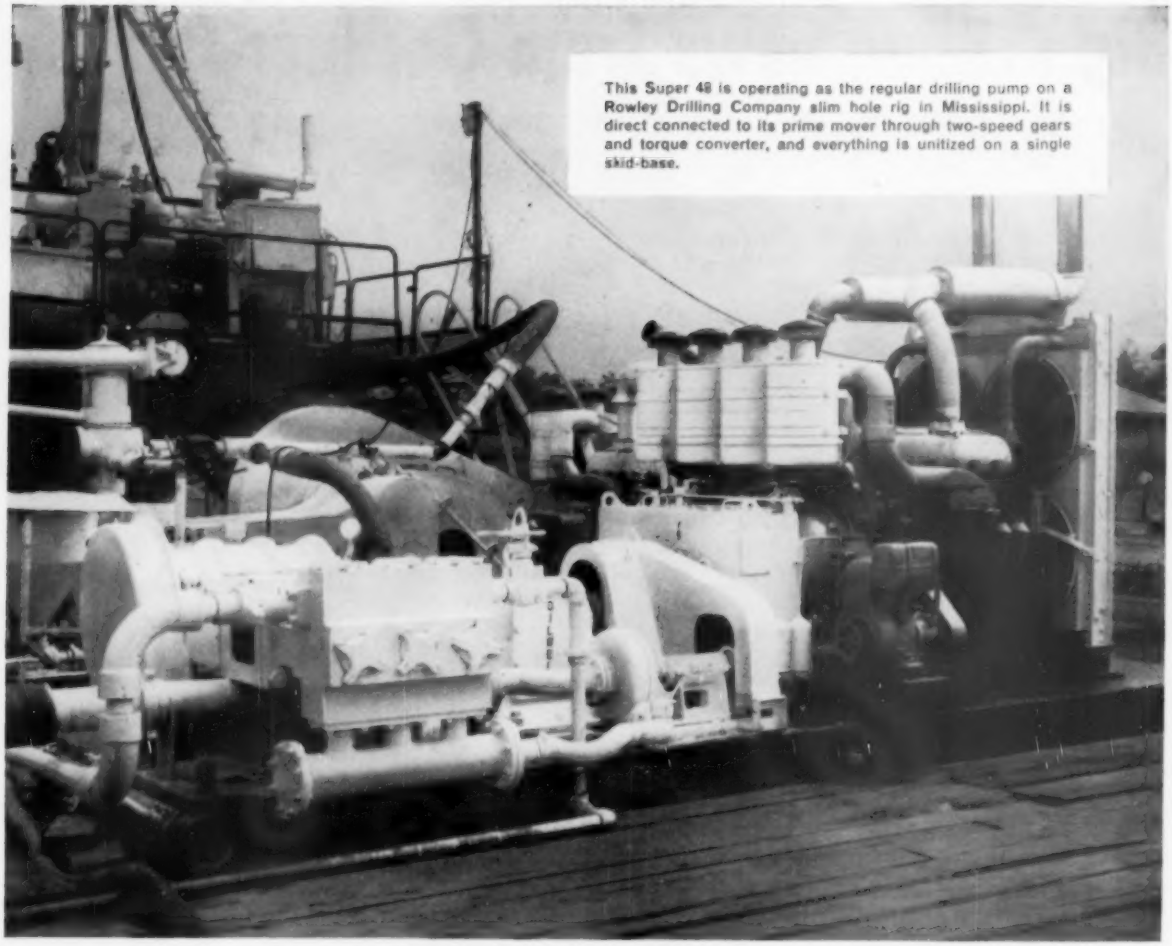

This Super 48 is operating as the regular drilling pump on a Rowley Drilling Company slim hole rig in Mississippi. It is direct connected to its prime mover through two-speed gears and torque converter, and everything is unitized on a single skid-base.

"Oilwell's" SUPER 48 is Portable-Flyable and FIELD PROVEN in high-pressure drilling service

Look at this data!

TYPE	triplex, single acting
CAPACITY	to 750 gpm
PRESSURE	to 10,000 psi
INPUT BHP	to 700 (intermittent)
WEIGHT	8,300 lbs. (pump without skids)
DIMENSIONS	7'6" x 4' x 3'6"
POWER FRAME	enclosed one-piece alloy steel weldment
FLUID END	forged alloy steel with quick-opening hammer-lug valve caps and cylinder heads
PLUNGERS	CO-HARD, with pressure lubrication
VALVES and SEATS	stainless, wing-guided slush type

Super 48's can be applied in a variety of arrangements. They are suitable for mechanical or electrical drive, with or without torque converter. They can be unitized singly or in multiples, with suction boosters, desanders and dampeners included if desired.

For further information on this interesting new product, contact your nearest "Oilwell" area or district office.

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Elmer Mankins, long-time Mack user, relies on this Mack B-83 workhorse for moving oil well drilling rigs.

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No hauling job's a cinch in the oil field trucking business. But Elmer Mankins, owner of Eagle Trucking Co., Kilgore, Texas, knows how to soften up the toughest hauls. On the jobs that demand the utmost from a truck, he puts his big Mack six-wheeler to work.

Reliable, month-after-month hauling of heavy drilling equipment through sand and mud calls for something special in tractive power. Here only Mack has the real answer . . . *the exclusive Balanced Bogie with Power Divider which gives unmatched performance over any terrain that will support the load.* By *automatically* transferring power to the wheels with the best traction, this exclusive 4-wheel tandem drive keeps a Mack truck rolling where other trucks bog down. No need for hand-operated lockout devices when you're having traction trouble. No risk of tearing up tires and differential if your driver forgets to unlock the differential when he's back on solid ground—the Balanced Bogie with Power Divider is fully automatic and fool-proof.

Contact your nearest Mack branch or distributor and let him prove why the combination of Mack-built matching components like the exclusive Balanced Bogie with Power Divider is your most reliable and profitable truck value today. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

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BY CATERPILLAR

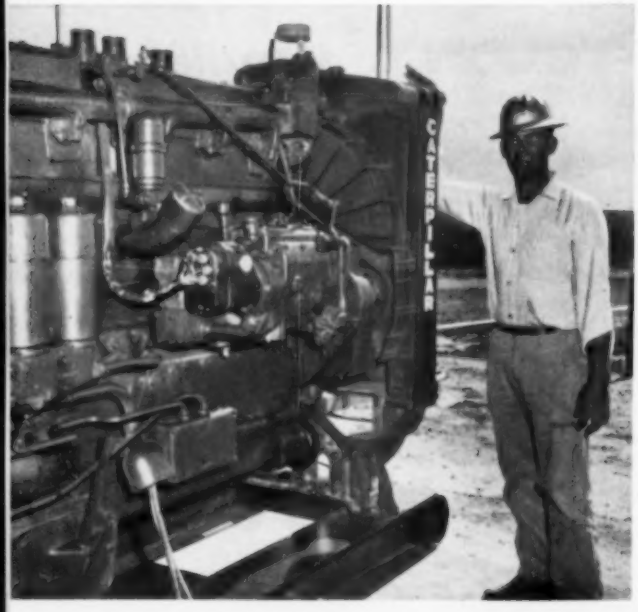
Cat G342... lowest operating costs, highest output for its size of any natural gas engine on the market

The Cat G342 Natural Gas Engine is the *lowest cost* gas engine available both in initial cost and over-all operating cost. It produces 235 *continuous* horsepower @ 1300 RPM.

Because the six-cylinder G342 is built on a basic diesel engine block, it operates continuously at full HP *without derating*. Only pistons and fuel systems have been changed for operation on natural gas.

Available in compression ratios of 10.5:1 or 7.5:1, depending upon type of fuel to be used, the G342 is built with the dependability and economy that have made Cat Engines famous. With the 10.5:1 ratio these engines use only *7000 BTU per brake horsepower-hour!*

This Caterpillar G342 Natural Gas Engine powers a Chicago Pneumatic gas compressor near Beeville, Texas, for Northern Pump Company of Minneapolis, Minn. Lease Pumper Marvin Rabe stands beside the G342 which pumps one to two million cubic feet per 24 hrs. of excess gas into oil producing sand to maintain pressure. This prolongs the flowing life of the four producing wells served and increases ultimate recovery of oil from the field.



Specify Cat power when ordering your oilfield equipment. Caterpillar Natural Gas Engines are available in 6, 8, or 12 cylinders from 210 to 470 HP. See your Caterpillar Dealer for help in selecting the right engine for your needs.

CATERPILLAR

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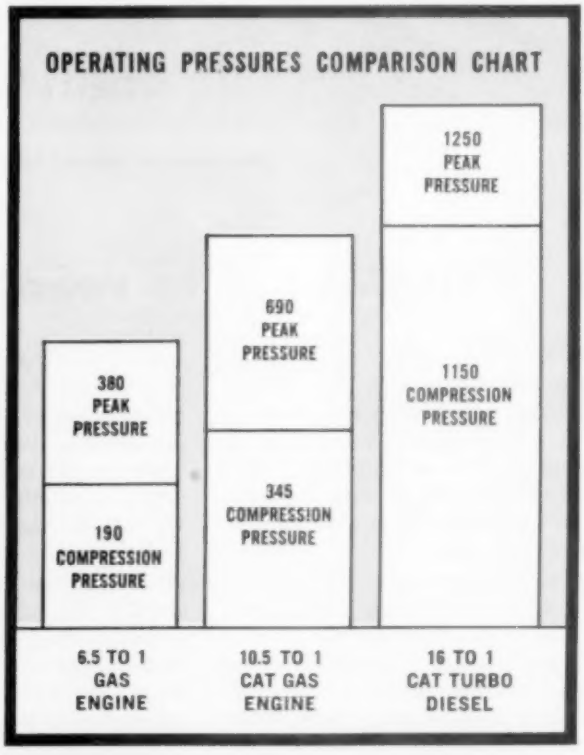
Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

Caterpillar operating pressures are about four times that of other make gas engines. To derate them to 65 per cent is not necessary since the engine is already operating well within the normal peak pressure load of 1250 PSI for which the engine is designed. Since other make gas engines are designed for peak operating pressures of approximately 380 PSI, it is necessary to derate them to provide reasonable engine life.



At Public Service Electric and Gas Co., Sewaren, N. J.

Bitumastic coatings resist 11 years of abrasive salt-water attack

Loading docks of Public Service Electric and Gas Company's Sewaren Generating Station are subjected to unusual corrosive attack by the Arthur Kill, a bay-like tidal river between New York and Staten Island. Added to the river's salt water content are floating debris and effluent from industries and oil refineries located along its shores.

To cope with these severe corrosive elements, 11 years ago Public Service's engineers specified that the steel piling for the station's loading docks and sea wall be coated with Bitumastic® No. 50. For added weathering protection, piling exposed above the low-tide level also was given an additional coating of Bituplastic® No. 28.

FOLLOWING 11 YEARS OF EXPOSURE, PUBLIC SERVICE'S ENGINEERS REPORT NO MAJOR RECONDITIONING OF THE PILING HAS BEEN NECESSARY. This utility's experience is not unique: four other installations fronting the Arthur Kill have had similar success with Bitumastic coatings on submerged piling.

The Bitumastic line includes a coating for every industrial corrosion problem. For on-the-job assistance to keep your corrosion costs down, call your nearby Bitumastic distributor or return the coupon. Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, Pittsburgh, New York and Woodward (Birmingham), Ala. In Canada: Koppers Products Ltd., Toronto, Ont.

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Firm_____

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60-Second Summary / WHAT'S HAPPENING IN OIL

March 4, 1960

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The Federal Power Commission authorized a 6½% rate of return to a gas utility last week—the first since 1957. Transmission companies say the move may be the first step toward breaking away from the fairly rigid 6% restriction. . . . p. 20

•

Cutbacks in refinery runs will help reduce—but not correct—the general oversupply. Reductions in throughput will amount to only a "swap" of the surpluses from products to crude as long as the rate of new supply continues high. . . . p. 18

•

Electronic computers are "making good" in completely controlling petrochemical units. One company reports that the first month's operations are "beyond expectations." . . . p. 52

•

Choosing an automatic lease system is a problem, but not an insurmountable one, in the opinion of a Shell Oil Co. engineer. Decisions are influenced most by economics. . . . p. 29

•

The coal industry charges that oil's resistance to an energy study could indicate it has "something to hide." Oil executives termed the comment "irresponsible." . . . p. 17

•

Premium gasoline sales, in relation to total motor fuel sales, are declining in the Northwest. Some marketers feel that compact cars may be an influence. . . . p. 80

•

Iran will "insist" on higher oil exports by the Consortium companies. And the government wants the Consortium to extend its exploration activities. . . . p. 58

•

There's fresh talk that a gas liquids pipeline from Alberta to the Midwest may be built after all. It's tied in with Canada's anticipated approval of gas export proposals. . . . p. 68

•

Fuel supply problems for small gas turbines are proving troublesome for refiners. Of the 28 fuels tested so far, fewer than half have been considered acceptable. . . . p. 55

•

A redesign of turbodrills to fit existing bits might improve turbodrill performance, one engineer believes. "A tool should be designed to approach the upper speed limit of rock-bit endurance," he says. . . . p. 34

•

Canadians aren't showing much interest in a fuel oil marketer's tie-in proposal to loan mortgage money to new home buyers. So far, fewer than 200 deals have been made. . . . p. 80

Up to the Minute

SIGNIFICANT LATE NEWS

March 4, 1960

Purchaser proration of crude started in one state this week, as a general oversupply continues to plague the industry. Esso Standard Division of Humble Oil & Refining Co. cut its take of Mississippi crude by 15%, effective Mar. 1. Esso's cut amounts to between 10,000 b/d and 12,000 b/d. Hardest hit by the cut is the growing McComb field in Pike County, where the State Oil & Gas Board cut the per-well allowable in half, to 150 b/d.

Refinery runs increased 27,000 b/d last week to average 8,108,000 b/d, despite the cutbacks announced by many companies for February and March (page 77).

•

Japanese imports of Soviet petroleum will rise sharply over the next three years. A trade agreement signed this week schedules Russian oil shipments to Japan at 1.1-million tons in the fiscal year starting Apr. 1, well above the 116,000 tons imported last year. And the pact calls for Japan to import 1.4-million tons in 1961 and 1.7-million tons in 1962.

•

A House-Senate subcommittee intends to study the economic effects of regulation of natural gas and control of oil imports. The group, headed by Rep. Wright Patman (D., Tex.), will take up where it left off last fall on its energy resources study (page 17), looking particularly into the regulation of wellhead prices of gas, controls over interstate and intrastate gas transmission, the "insulation" of domestic crude prices through import restrictions, and "controls" over oil and gas production. The study is expected to be resumed in April, though no date has been set.

•

The Oil Import Appeals Board has ruled out increased allocations for five companies. The rulings, the first made by the board for 1960 quotas, barred increases for Standard Oil Co. (Ind.), Patterson Oil Co., Metropolitan Petroleum Co., Patchogue Oil Terminal Corp., and Texas American Asphalt Co. In answer to the requests for higher allocations for the January-June period, the board ruled that Indiana Standard, Patterson, and Metropolitan failed to prove "sufficient hardship." It said Texas American had no importing history, and declared that Metropolitan's appeal did not contain any "special circumstances."

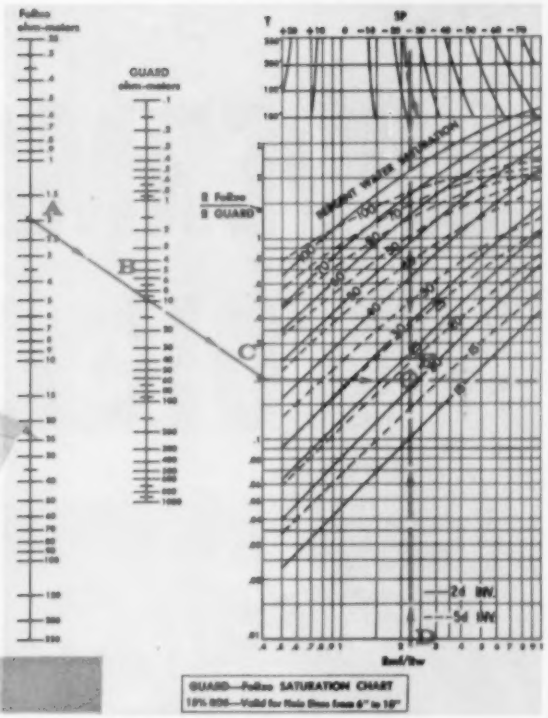
•

The hearing to consider prorating production from secondary recovery projects in Texas has been postponed to June 16. The date for the study of prorating future waterflood and pressure maintenance projects was delayed from Apr. 19 by the Railroad Commission to give producers more time to prepare data.

•

Percentage depletion can be taken on "shut-in" royalty payments, a federal judge ruled this week. The ruling by District Judge Joe Ingraham, in Houston, upset previous rulings that defined payments by a lessee to a landowner under the shut-in gas well clause as rentals for federal income tax purposes.

Reading A Welex Log Is A Cinch!



That's right — it's as easy as drawing a straight line.

With Welex's new simplified interpretation charts, or "pigtails," printed right on the log where they are always convenient, you can read POROSITY directly off the log and calculate FLUID SATURATION in seconds. No complicated computations are needed.

To use the Guard-FoRxo "pigtail" above to figure FLUID SATURATION, follow these simple steps. In this example, values read directly off the log in the zone of interest were: FoRxo 2 Ohms; Guard 10 Ohms; SP (self potential) —22 millivolts.

A. Pinpoint the FoRxo value on the FoRxo scale.

B. Pinpoint the Guard value on the Guard scale.

C. Connect points "A" and "B" with a straight line and extend it to intersect the side of the water saturation chart at point "C". Draw a horizontal line from point "C" across the chart.

D. Pinpoint the Rmf/Rw value (if known from Rw data in the area) on the Rmf/Rw scale at the bottom of the chart and raise a vertical line to intersect the horizontal line at point "E". (If Rw data is not available, an alternate method is to pinpoint the SP value (—22 millivolts) on the SP scale at the top and drop a vertical line.)

E. Read the percent of FLUID SATURATION at the intersection of the two lines.

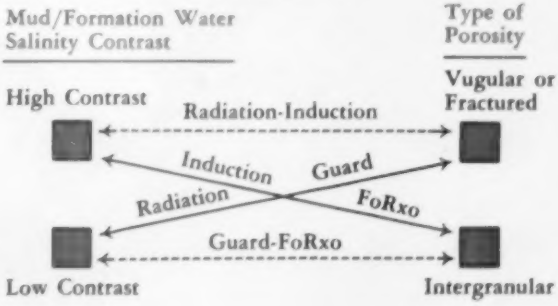
The answer in this illustration is 22 percent.

And just as simple as the "pigtail" is the actual selection of the right logging service for your well, thanks to Welex's new simplified logging program. Based on type of porosity and the salinity contrast between drilling mud and formation water, the diagram here shows how simple it is to choose the right logs without running any excess logs.

For example, the diagram shows that if the salinity contrast is low and the porosity is intergranular, the best log for your well is Welex's Guard-FoRxo. If the porosity is the same type and the salinity contrast is high, the best choice is the Induction FoRxo.

Fast, accurate and simple — that's Welex's new logging program. The Guard-FoRxo, the Induction-FoRxo, Radiation-Guard and Radiation-Induction, each with its own easy-to-use "pigtail," give fast, accurate answers in more than 90 percent of today's wells.

For the right logging answer for your well, call your nearest Welex representative.



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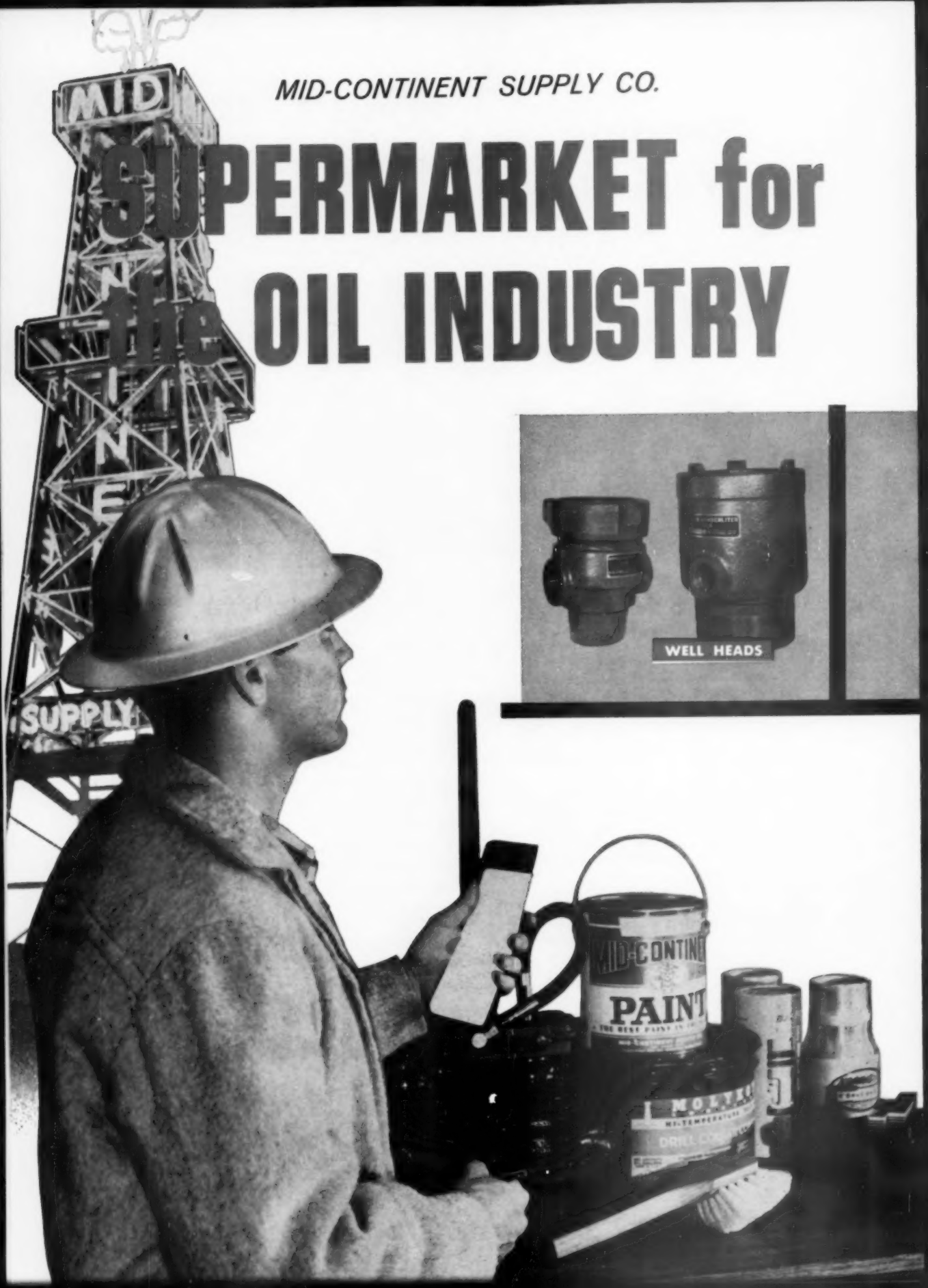

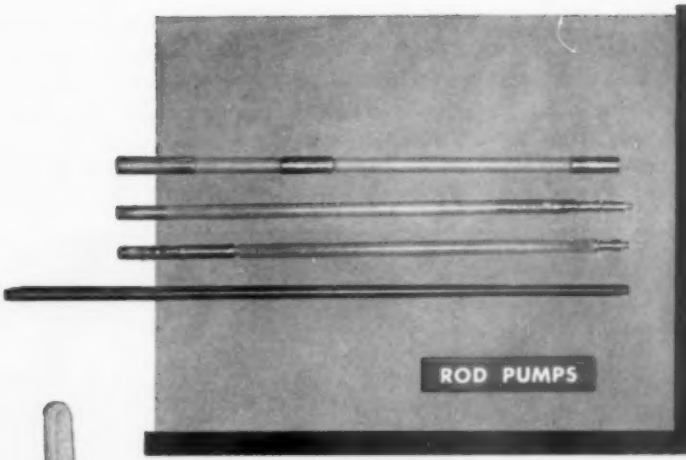

ROD PUMPS

GAS REGULATORS

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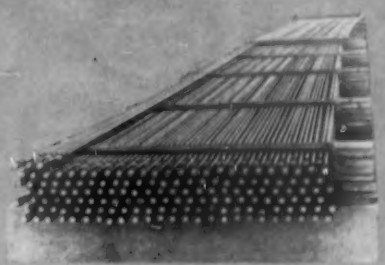

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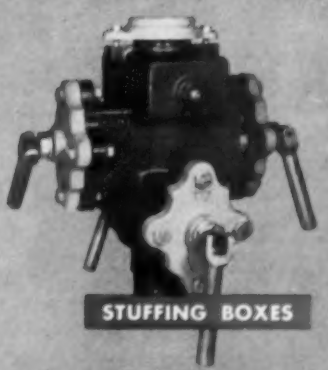
Supermarkets in the oil industry? It's one way of saying that Mid-Continent Supply Co., a vast network of field stores in the United States, Canada and South America, has everything. Mid-Continent field stores are stocked with thousands of different items needed daily in the oil fields—items of supplies and equipment with names well known and trusted for dependability and performance. Twenty-four hours a day, our "supermarkets" for the oil industry have skilled men to render top notch service and offer technical assistance. Let the neon derrick atop every Mid-Continent field store become your symbol of sure service . . . sure supply . . . around the clock . . . around the world.



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"Oil hidden in the ground is worthless. It becomes useful, and therefore valuable, only when through courage, ingenuity and skill men discover it, bring it economically to the surface of the earth and turn it into products that people need. This is true of all so-called natural resources.

JOSEPH N. PEW, JR.
Chairman of the Board
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"The key to progress, therefore, is freedom for men to continue to dream, plan, invent and experiment with new ideas, new tools and new methods in a never ceasing effort always to do their jobs better.

"As suppliers of the nation's basic energy source, oil men must continue in this traditionally progressive spirit. Never before has the need been greater than today for the utilization of better tools and advanced techniques in the recovery of oil and gas as a result of increasingly complex drilling and production problems.

"In meeting this challenge, the technical men engaged in oil production join with the manufacturing, service and supply companies to provide the equipment, the technological advances, the methods and the services that are vital to the discovery of an oil field and its economically successful development. Vigorous and forward-looking, these companies exemplify the resourcefulness that has helped our industry contribute so greatly to higher standards of living for all mankind."

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PETROLEUM WEEK
March 4, 1960

Oil Fears Energy Study, Coal Says

- **Continued resistance, coal group charges, indicates oil industry "has something to hide."**
- **Oil men call charge "irresponsible," insist proposed study would lead to end-use controls on fuels.**

Oil men reacted sharply this week to a charge by the coal industry that opposition to its energy-study proposal could indicate that resisting groups "have something to hide."

The National Coal Policy Conference in Washington, also contended in a pamphlet that opposition to the study is "illogical, unwarranted, and unjustified."

The pamphlet represented the coal industry's latest broadside in its increasingly aggressive campaign for a congressional study of the nation's energy sources and supplies—a study which most oil men feel is the keystone of a drive for end-use controls on fuels.

The National Coal Policy Conference was organized last summer to spearhead the drive. It functions as an "industry spokesman" for coal, giving it a decided advantage over oil's individual representations.

Rebuttal comments came from oil men and trade groups alike, including a top leader of the petroleum industry, Frank M. Porter.

Porter, president of API for the past decade, termed coal's "something to hide" comment an "irresponsible remark."

He said he finds it "almost impossible to keep up with and answer irresponsible remarks of that nature." And he remained adamant in his opposition to the fuels policy study.

"As I pointed out in my talk at the API annual meeting last November," he said, "the coal people have made it abundantly clear that what they want in the long run is end-use controls on fuels.

"They want to carve out a piece of the market for themselves by legislation, rather than competition."

From other oil men came these comments:

Robert G. Dunlop, president of Sun Oil Co.: "The petroleum industry has nothing to hide, and it has never sought to evade investigation by Congress. For spokesmen of the coal industry to insinuate otherwise is to seek to surround their own ends with a wrap of purity through a crude effort to besmirch the oil and gas industry.

"What the coal industry appears to want is not an impartial investigation, but one which is loaded by the terms of the resolution it is pushing to assure a conclusion favoring government-enforced end-use controls."

Herbert G. Willetts, president, Mobil Oil Co.: "At present, consumers have complete freedom of choice in buying energy. Does freedom need investigation?"

J. Ed Warren, president, Cities Service Co.: "It isn't a lack of supplies that's behind the study proposal. Rather, it's a case of one source of energy trying to obtain favored treatment. My personal feeling is that the most economical, and the most sound, basis for the consumer to obtain his energy supplies is through the competitive marketplace. I am not against coal helping itself, but freedom of choice for the consumer is the best possible approach."

Gulf Oil Corp. passed up a comment on the coal statement at this time. But a recent statement issued by the firm had this to say: "Coal has failed to show a truly national justification for its policy. If there is a fuel crisis, it is only the one that coal's policy would bring on."

Other oil company executives contacted by PETROLEUM WEEK agreed that the charge should be answered, but declined, for a variety of reasons, to provide a comment themselves.

Coal's "something to hide" charge came at the conclusion of a persuasive pamphlet that went to every member of Congress, and many other "thought leaders" as well.

Distribution of the pamphlet included some 600 editorial writers throughout the U.S., and the Washington correspondents for most newspapers and magazines.

The pamphlet's conclusions:

- "Opposition to the study based on the possibility of additional federal controls over fuels resources is invalid in that similar objections could be made to any congressional inquiry."
- "If recommendations are made which any fuels industry believes adverse to its best interests, then is the time to interpose objections. Certainly, opposition to the study itself seems illogical, unwarranted, and unreasonable. Continued opposition . . . could easily be interpreted as motivated by the fact that the opposing groups have something to hide."

The pamphlet quoted many individuals and groups to buttress its case, ranging all the way from the U.S. Government to the Russian newspaper, Izvestia.

Among these were the National Resources Committee, the Senate Interior & Insular Affairs Committee, the Paley Commission, Resources for the Future, Inc., two Federal Power Commissioners, and Catawba Corp., a New York research organization.

The pamphlet quoted the Russian newspaper to the effect that long-range planning required "extensive but intelligent use" of fuels, and that "we intend to keep a watchful eye on the country's natural energy fuels balance."

Then the coal industry made this point on its own:

"If past history is to be any guide, a sensible balance of U.S. energy resources cannot be achieved through existing fuels policies.

"And if the U.S. is to prevail in the long-term economic cold war, we too must maintain 'a very watchful eye' to prevent a serious imbalance in our future fuels economy."

The coal industry also implied that oil's "presumption" about a biased study is an "insult" to Congress.

The pamphlet phrased it this way:

"The presumption that such a group [the Joint Study Committee] would favor one fuels industry at the expense of another is, in the words of Joseph E. Moody, president of the National Coal Policy Conference, 'an insult to the integrity and intelligence of Congress.'"

Nor is there any logical foundation, it went on, for the fears expressed that the result of the inquiry might be gov-

ernment controls over the fuels industries, including end-use controls.

Actually, it said, there already are extensive federal and state regulations covering end-use of energy and, as far as coal is concerned, it has no objections if the proposed study should result in more.

The pamphlet cited a quotation from the "TIPRO Reporter," publication of the Texas Independent Producers & Royalty Owners Assn., as indicating support of the proposed study because it might be a means of ending federal controls on natural gas production.

But the TIPRO article from which the quotation was taken also said, "No one questions that the newly-formed National Coal Policy Conference is out to gain political help for capturing markets which coal would not normally command in the normal competitive arrangement."

TIPRO clarified its stand with a policy statement by Harry C. Jones, its president, that independent oil men and coal operators share "certain fundamental objectives."

But, it added, "We are opposed to the kind of a policy which might result from the resolution introduced by certain coal interests. Most of us disagree, for that matter, that there is actually a need for any form of congressional action formalizing a national fuels policy. But to be simply against a 'national fuels policy' is a little short of absurd."

The coal proposal calling for the congressional study has 43 cosponsors in the Senate, and 29 in the House. And Washington oil representatives concede that the coal people are making progress in their campaign.

Cosponsors in the Senate include a healthy representation from oil states, while those in the House are primarily from coal-producing regions.

Senate action, one way or another, is anticipated within the next few weeks. There's a possibility that the Senate Rules Committee may hold hearings soon to clear the resolution for Senate Action. The companion measure in the House has been hung up in the Rules Committee there since last September.

There are indications that the coal industry will modify its present proposals to get around oil industry objections.

That this is in the works was indicated earlier this week by Rep. Cleveland M. Bailey (D., W. Va.) who said he will introduce a new resolution on the energy study proposal.

Rep. Bailey said his new bill would be so worded that it would soften opposition.

Total Demand Is Highly

The cutbacks being made in refinery runs by many companies will at best provide only a partial "correction" to the serious glut of excessive inventories.

The existing surpluses are in refined product stocks. But reductions in runs without corresponding cutbacks in the rate of new supply amount to no more than a simple swapping of inventory positions.

Current crude inventories of 252-million bbl. are slightly under a year ago, and are not excessive when measured by themselves. But cutbacks in runs in the face of a relatively high rate of new supply means that crude stocks will increase substantially.

With some cutbacks in runs already made during February, crude stocks moved up significantly last week, rising 2.7-million bbl., the sharpest weekly rise this year.

The over-all stock surplus—crude and products—will continue, with the higher-than-usual crude stocks available to refiners to process into saleable products.

Reductions in runs will help to curtail the rate of product inventory buildup. But they will not provide a positive cure for the industry's perennial oversupply ailment.

The correction required to prevent excessive inventories is the gearing of over-all supply to the wide seasonal fluctuations in demand.

One method of doing it is shown below.

The general seasonal pattern has been the same for years (charts, page 19). But the fluctuations between seasons have become sharper in recent years—requiring more pronounced variations in the annual pattern of supply if surpluses in the spring and summer are to be avoided.

The difference between the seasonal high and low in total demand now amounts to about 2.7-million b/d. That was the pattern in 1959 between January and May, and it will be the approximate trend this year.

The pattern of the demand trend usually is predicted with a high degree of accuracy in the numerous forecasts available to the industry.

There is some variation in the high and low months. In 1958, for example, the peak came in December, when temperatures averaged much below normal for most of the country. And the December demand ran 3.2-million b/d over the low month of May.

But regardless of the month, the peak demand comes in midwinter, and the low can be anticipated in late spring or early summer.

With the seasonal trend of demand dropping sharply from January through May, new supply—domestic production plus imports—should follow a similar pattern.

That's seldom the case, however. Some major purchasers of Texas crude asked for an increase in the February allowable over January—in the face of an indication at the time that demand was running below expectations, and of the general trend of a seasonal decline in demand in February.

Some buyers continued to ask for a relatively high producing schedule in March—again in face of the probability that demand in March will average about 1-million b/d below January.

Louisiana, for example, has increased its allowable for each month

One Way to Balance 1960 Supply

John G. Winger, vice-president and petroleum economist of the Chase Manhattan Bank, in New York, offers a hypothetical model of balancing supply with seasonal changes in demand. It is based on an annual total demand averaging 10-million b/d, the approximate volume forecast for 1960. The suggested pattern, in thousands of barrels daily, is:

Quarter	Total Demand	Total Supply	Stocks Change	Refinery Runs
First	10,800	10,225	−575	8,500
Second	9,200	9,550	+350	7,950
Third	9,200	9,725	+525	8,100
Fourth	10,800	10,500	−300	8,700

Seasonal—and Supply Should Be Too

of 1960, and the allowable is now set to continue upward through April—despite the sharp seasonal drop in demand in March and April.

The allowables in Texas, Oklahoma, and Kansas were cut for March, but many economists say the cuts were too little and too late in view of the surpluses of products and the rise that can be expected in crude stocks with reductions in refinery runs.

Total new supply in February exceeded the average for January, and chances are supply in March will be at or above the January rate.

The reason is that total imports under the mandatory control plan are geared to an almost steady rate, with little month-to-month change except possibly for residual fuel.

Also, the cuts in allowables that have been made in the states that prorate to market demand are not sufficient enough to bring a lower rate in total U.S. production, because of new wells coming in and the lack of cutbacks in other states.

In Oklahoma, for example, the basic per-well allowable in allocated pools was cut from 22 b/d in February to 18 b/d in March. But this 18% cut in the basic allowable will bring March production down only about 5%, the Corporation Commission estimates.

The simplest way for the industry to solve its perennial problem would be to gear operations to the pattern of distillate demand—in terms both of new supply and of setting refinery throughput rates.

The curve of distillate demand closely matches the seasonal variation of total demand (charts, right).

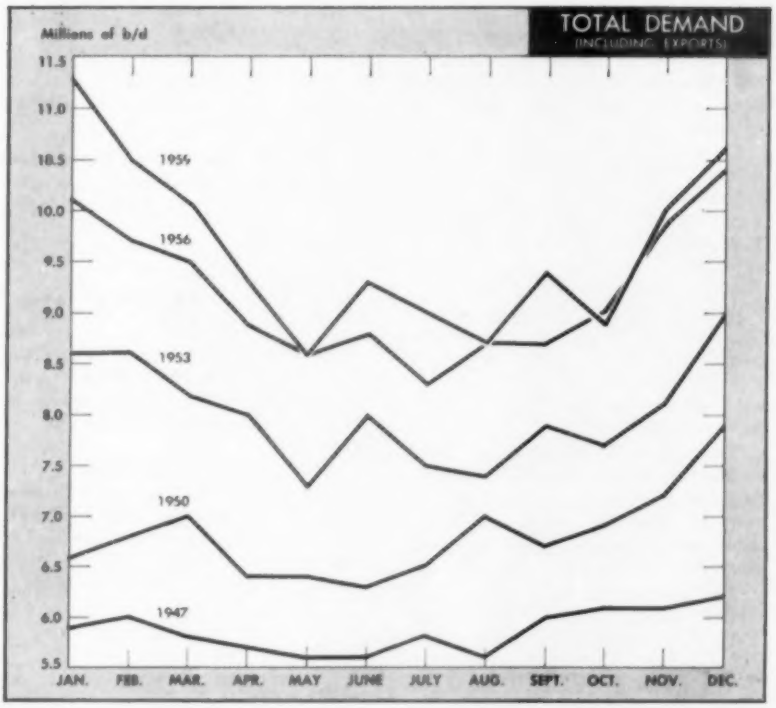
The industry sells twice as much gasoline as it does distillate—and the ratio may even increase if natural gas makes much greater inroads into home heating markets.

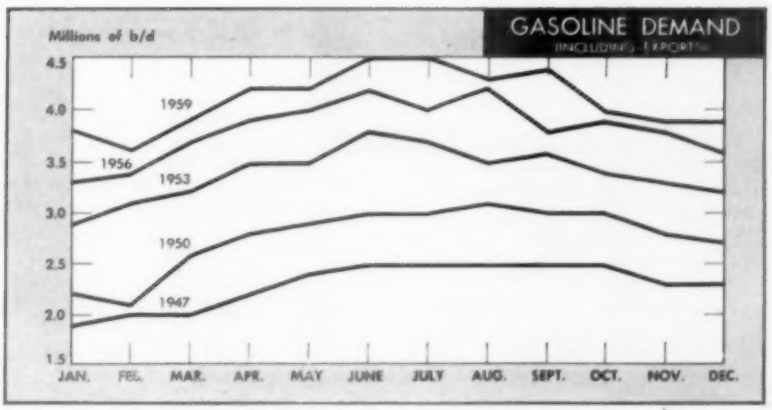
But with the ability to turn more than 50% of each barrel of crude processed into gasoline, the industry's problem is holding gasoline output down to the level of demand.

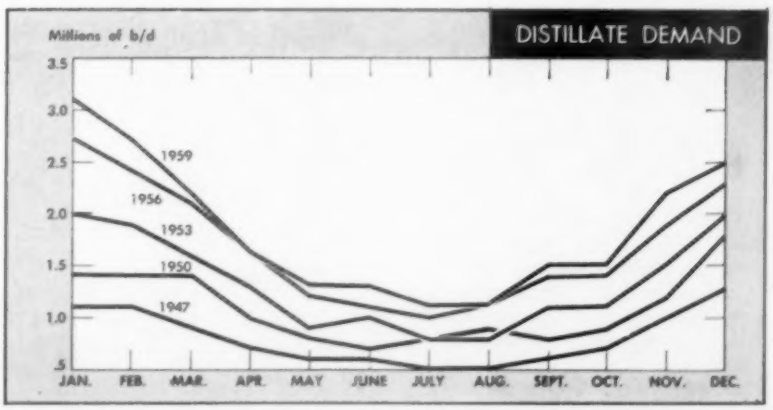
The pattern of gasoline demand is far closer to a "straight line" pattern the year-round than is distillate demand (charts).

Gearing the rate of supply and processing to the "distillate curve" would provide all the peak winter requirements of heating oils and would also supply enough gasoline to fill year-round needs.

Under such a program, the only carry-over product in inventory between seasons would be gasoline.







Oil Cuts Bids for Offshore Acreage

Last week's big federal lease sale in the Gulf of Mexico proved that the interest in offshore acreage is still high—but that the oil companies have scaled down their evaluation of submerged lands.

Of the 1,610,983 acres offered in federal Zone 4 and the disputed federal-state Zone 3, 715,703 acres were leased for a total bonus of $284,496,231, or an average of $397.50 an acre.

The size of the sale was by far the biggest yet. But the average offered per acre was well below the average of $2,267 an acre paid last August, at the last federal sale of Gulf lands. The total offered then amounted to only 38,819 acres.

The average bonus bid at last week's federal sale was considerably above the $142 an acre average received by the state of Louisiana at its sale of onshore and offshore acreage the previous week (PW—Feb.26'60,p18).

The bids on the federal acreage included $249,448,617 for 511,025 acres off the Louisiana coast and $35,732,031 for 240,480 acres off Texas.

Ten of the high bids in Zone 3—which, together with Zone 2, is involved in the ownership dispute between the federal government and the five Gulf Coast states—were rejected soon after the bidding closed.

These bids totaled $684,417 for 35,802 acres.

Top bonus bid for Louisiana land—$11,112,000—was offered for 5,000 acres in the South Marsh Island area.

Gulf Oil Corp. and Socony Mobil Oil Co. made the bid jointly for Tract 649, Block 48. It averaged out to $2,222.40 an acre.

The highest per-acre bid was made by Union Oil Co. of California and Pure Oil Co. They bid $2,501 an acre for a 3,033-acre tract in the South Marsh Island area, a total bid of $7,587,000.

Among other top bids for Louisiana acreage:

Gulf, Humble, and Mobil offered $10,636,005 for 5,000 acres in the Ship Shoal area (Tract 773, Block 169). The next highest bid was $3-million by Phillips Petroleum Co.

The CATC group—Continental, Atlantic, Tidewater, and Cities Service—was successful bidder for Tract 628, Block 127, in the Vermilion area, offering $2,064 an acre for 5,000 acres, a total of $10,320,000. Gulf-Socony were unsuccessful bidders on this tract, with a bonus offer of $751,000.

Shell Oil Co. bid $10,002,410 for Tract 685, Block 100, in the Eugene Island area, an average of $2,000.48 an acre for 5,000 acres.

Gulf and Socony bid $8,588 jointly for Tract 632, Block 131, in the Vermilion area, or $1,744.51 an acre for 4,922-plus acres.

Shell Oil Co. offered the highest bonuses for Texas offshore acreage.

Its top bid was $5.9-million for 5,760 acres in the Galveston area (Tract 155, Block 288).

Bureau of Land Management officials estimate that one-fourth of the bid money accepted will be put in escrow until the Supreme Court reaches a decision on the offshore ownership of the disputed Zones 2 and 3.

FPC Approves 6½% Rate on Gas

Hope runs high among natural gas transmission companies that the approval of a 6.5% rate of return by the Federal Power Commission will spread.

In a move hailed by pipeline companies as "a milestone" and "a good break for the pipeline industry," FPC last week approved the increase for Manufacturers Light & Heat Co., a subsidiary of Columbia Gas System, Inc. The company was getting 6.25%—one of the highest rates currently allowed by FPC.

The company had asked for a rate boost to 6.75%, while the FPC staff had recommended continuation of its 6.25% rate.

The commission based the hike on the "sharp rise in the cost of debt throughout 1959." FPC said that 6.25% would not produce a 10% return on equity capital.

The hike may have "broken the barrier" against higher returns, and suggests that higher rates are warranted in other cases, pipeline men feel.

Up until now, FPC had allowed a rate of return between 5½% and 6¼%, with the average at 6%.

Pipeline companies have contended for years that this rate is too low. With today's tight money market, they say, the high cost of bonds allows a return on common stock too low to attract new investors.

Another bright spot on the transmission companies' horizon is the continued spurt in natural gas sales to electric utilities.

U.S. electricity companies used a record-breaking amount of fuel last year—and natural gas scored the biggest increase.

FPC reported that consumption of natural gas in 1959 by the electric utilities rose 18.5% to a hefty 1.4-trillion cu. ft. Residual fuel oil scored an increase of 13.8% to total 77.7-million bbl., and coal consumption rose 8.2% to 155.7-million tons.

'66 Cars Will Need 103.5-Octane

Twin forecasts on motor-fuel demand for cars of the future indicated this week that requirements will mount steadily in both quantity and quality over the next 10 to 15 years.

The predictions come from different sources: John R. Sabina, planning manager of Du Pont's Petroleum Chemicals Division, and the U.S. Commerce Dept.'s Bureau of Public Roads.

One forecast says refiners must plan not only for a 30% increase in demand over the next decade but also for cars having octane requirements of 103.5 and over by 1966.

This came from Sabina, at a Delaware Valley meeting of the American Chemical Society. And, he said, flexibly designed catalytic reformers will be the backbone of tomorrow's refinery for production of premium-grade gasoline.

The passenger car population is expected to jump from the present 60-million to 85-million by 1970, he noted.

Sabina expects compression ratios to rise to 10.4:1 by 1966. That will mean, he said, that 103.5-octane will be required to satisfy 95% of the new cars, and 98-octane to accommodate at least 50% of the 1966 models.

The other prediction is that there will be 114-million motor vehicles (including trucks and buses) in 1976, and that they will require 2.3-billion bbl. of fuel.

The Bureau predicts that the average vehicle by 1976 will travel 10,562 mi. annually, and will consume 855 gal. of fuel.

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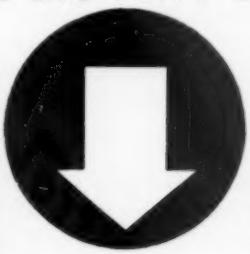

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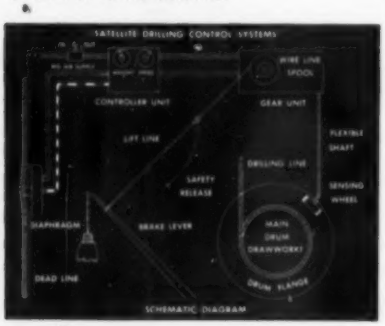

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What's New / IN THE INDUSTRY

Competition by crude suppliers for outlets in Japan continues strong. This week Tidewater Oil Co., which owns 50% of Mitsubishi Oil, signed a long term contract with the Japanese company to supply Persian Gulf crude at approximately 13% below posted prices. It is estimated that the contract will cover about half of Mitsubishi's 30,000 b/d refinery requirements. Previously, other suppliers have offered Japanese refiners crude-gasoline barter deals. The Tidewater contract, though, will put pressure on other existing long-term supply pacts, notably that between Gulf Oil and Idemitsu.

•

Top bid at North Dakota's biggest offering of school land leases was $30 an acre. Total bonuses at the sale amounted to $592,442. Lands scattered throughout the western half of the state were included in the 968-tract offering. High bid was by Tennessee Gas Transmission for a 625-acre tract in 36-146n-102w, McKenzie County. Bonus offers ranged downward to 25¢ an acre.

•

Virginia service stations excluded taxes from their gasoline price signs this week to dramatize the gasoline tax story. Previously, pump signs had included the 10¢-a-gal. total of state and federal taxes. Motorists were given printed explanations when they purchased gasoline. The step was taken, a spokesman said, so that motorists would be aware that combined taxes in Virginia currently exceed 50% of the retail price.

•

A runoff election will be held at Esso Standard's Bayway (N.J.) refinery by the National Labor Relations Board. No union received a majority of votes cast at last week's election. Result of the voting was: OCAW, 597; Independent Petroleum Workers Union of N.J., 533; Teamsters Union, 136; and Operating Engineers, 47. The election had been requested by OCAW.

•

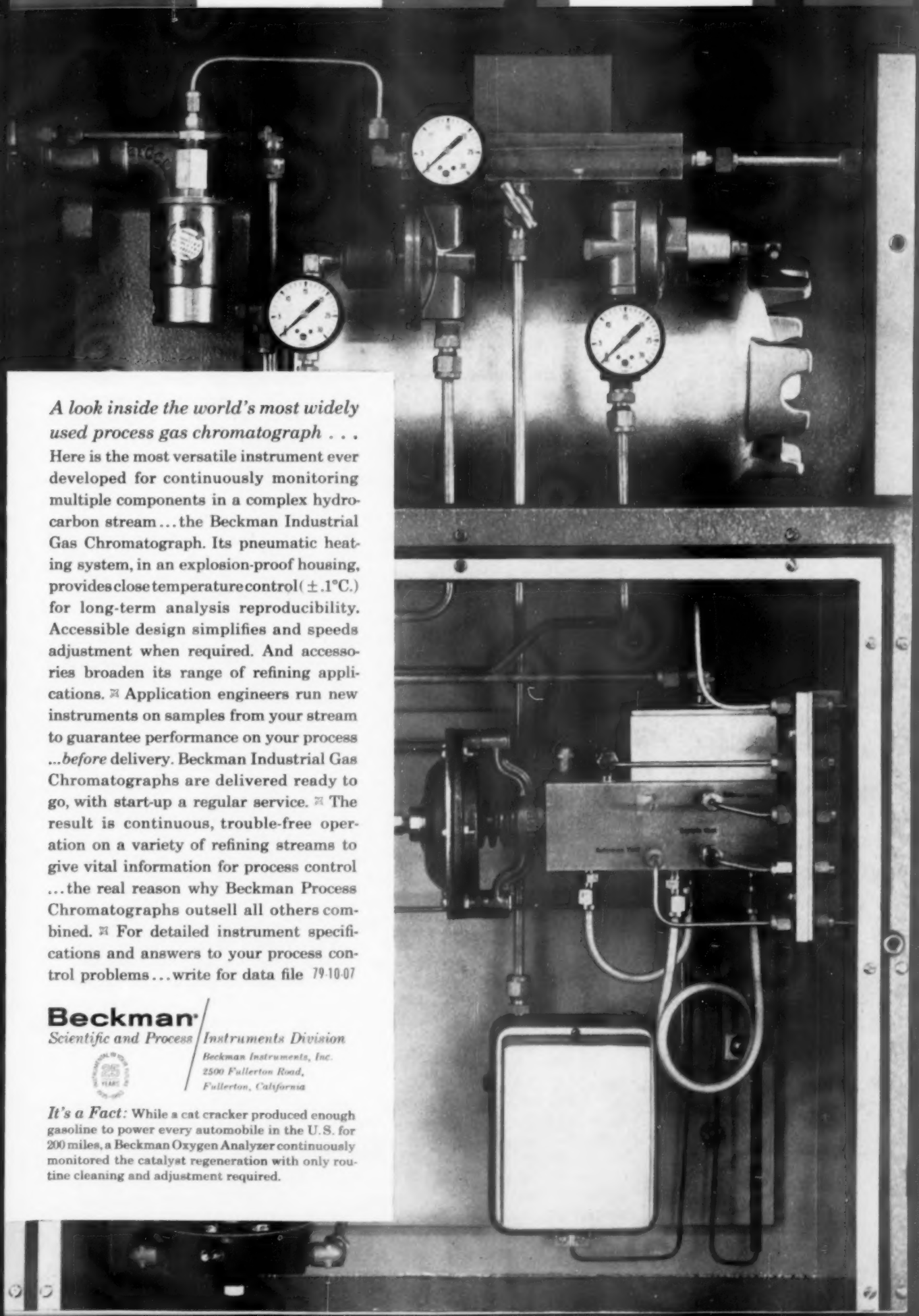
The Kansas allowable for March has been set at 325,000 b/d, a 5,000 b/d cut from February. The cut had been recommended by Jewel M. Ogden, state conservation director. Purchaser nominations totaled 318,135 b/d, up 1,439 b/d from February. The Bureau of Mines demand forecast for Kansas crude in March was 330,000 b/d, 25,000 b/d under February forecast, Ogden said.

•

The president of Northern Natural Gas Co. this week proposed a cut in income taxes for regulated industries. John F. Merriam asked a reduction and eventual elimination of federal income taxes on corporate profits of regulated industries, including electric and gas utilities, gas pipelines, and telephone and transportation industries. This, he said, "would eliminate the discrimination that now exists against privately owned companies in favor of non-taxpaying publicly owned or government owned utilities."

•

The Virginia legislature expects to consider soon a bill that would classify liquid pipelines as public utilities. The bill, introduced at the request of a group of Washington investors incorporated as Potomac Public Service Co., is designed primarily to give the group the exclusive franchise to move fuel by pipeline to the Dulles International Airport being built at Chantilly, Va. The Virginia Petroleum Industries Assn. and the Federal Aviation Agency say the bill would "strangle competition."



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Looking Ahead in Washington

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Washington
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March 4, 1960

Only about six weeks remain for the White House to speak out effectively on natural gas legislation—if it intends to do so. You can expect gas bill backers to start directing personal appeals to President Eisenhower after he returns from his South American tour this weekend. Industry leaders consider an Eisenhower endorsement of gas legislation essential if Congress is to consider a bill seriously this year.

•

If the Administration remains quiet through mid-April, gas bill advocates probably will throw in the towel for 1960. Congress' Easter recess is looked upon as an unofficial deadline for White House action. Any legislation that doesn't have some momentum by the time Congress returns from its recess will be difficult to bring to a vote.

Even with White House backing, gas legislation would have a rough route in Congress. There is little to indicate that the opposition in Congress has decreased since the votes of 1955 and 1956. And such powerful backers as Senate Majority Leader Lyndon Johnson (D., Tex.) may be reluctant to throw their weight behind a controversial bill. Johnson is seeking the Democratic nomination for president, although he's not an announced candidate, and some advisors believe another gas bill fight would seriously hamper his chances.

The summer political conventions will make this a short session of Congress. Members want to adjourn some days before the Democratic National Convention, which starts July 11, and nothing short of a national emergency will change their minds. Any natural gas bill must be passed by both the House and Senate this year or face a completely new start in the 87th Congress next year.

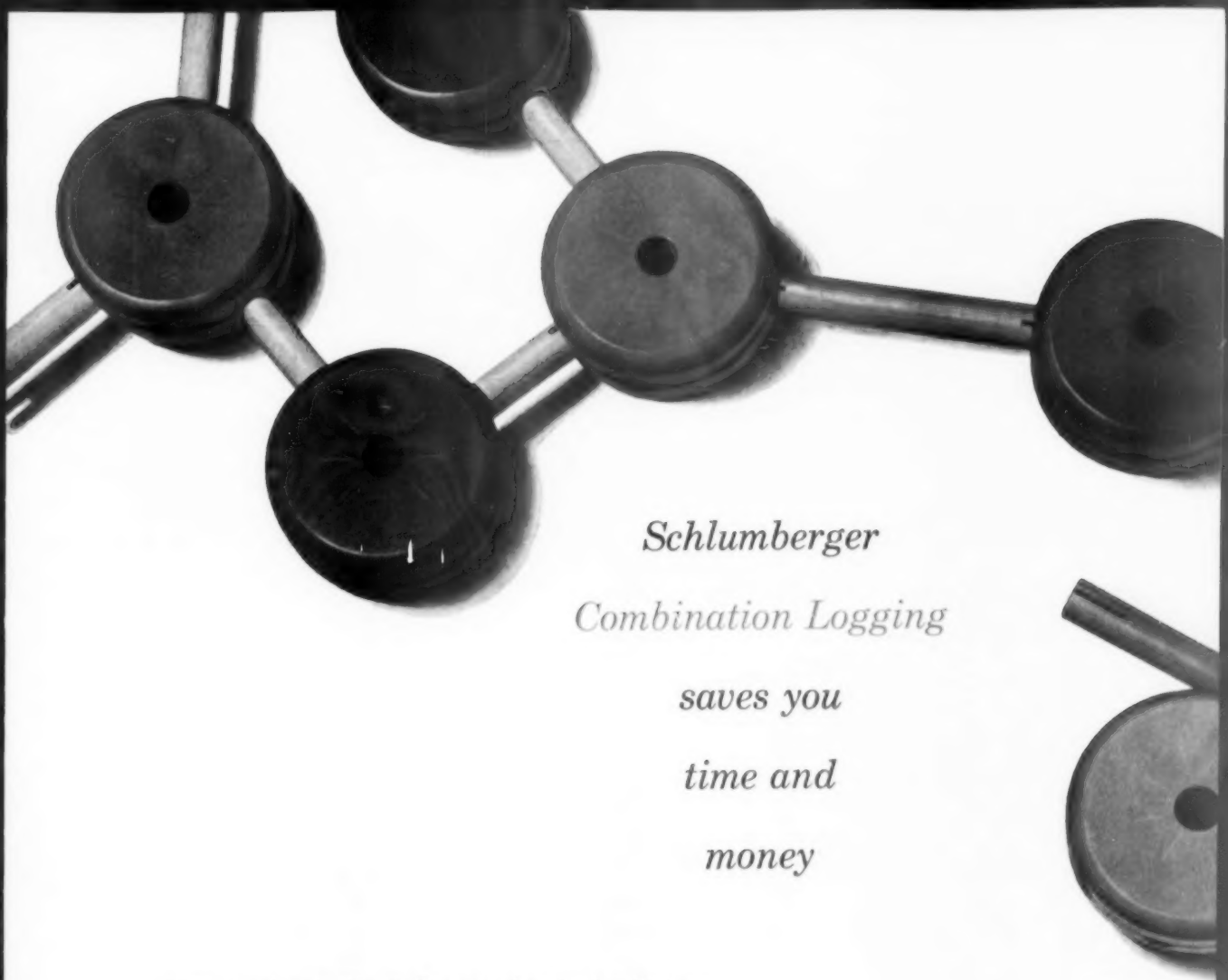
•

At least two new reports on industry operations will be handed the government by the National Petroleum Council this month. NPC will meet in Washington Mar. 22. Council committees now are putting the finishing touches on reports scheduled for submission to the Interior Dept.—one on the petroleum industry's need and use of the radio spectrum; another showing in great detail total U.S. storage capacity for crude and the major products.

The report on domestic oil storage is expected to show a capacity in the neighborhood of 1.5-billion bbl. But the report's major value lies in a county-by-county breakdown on storage areas, for crude and products. No data has been collected in this undertaking on natural gas or liquefied petroleum gas. One section of the report—detailing exact longitude-and-latitude locations of the storage areas—will not be made public, reserved for official government use only for use in a national emergency.

•

The Office of Civil & Defense Mobilization's projected survey of the fuels picture in 1970 will show coal gaining in utility use. OCDM's long-range study—now more than a year late—is still some months from completion. But the report is taking sufficient shape to encourage coal men. Use of coal to fire boilers in utility plants is one of the bright spots in the picture for that industry ten years hence. The report is expected to show natural gas continuing to replace coal in home markets, however.



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MUD PROBLEM: Maintaining a stable lime mud at high temperature.

WELL DATA

Location: San Salvador Field, Hidalgo County, Texas
Total Depth: 16,684'
Bottom Hole Temperature: 356°F

MUD ADDITIVE PROGRAM

0' to	4000'	Native mud plus AQUAGEL*
4000' to	5800'	AQUAGEL, BAROFOS*, TANNEX* and caustic soda
	5800'	Converted to lime treated emulsion mud
5800' to	9000'	CARBONOX*, lime, TANNEX, Caustic soda, IMPERMEX*, diesel oil
9000' to	16,684'	CARBONOX (up to 20 lb/bbl of mud), caustic soda, lime, diesel oil; and MICATEX* and TUF-PLUG† in quantities from 10 to 30 lb/bbl of mud BAROID* was added as neccessary to control mud weight

TYPICAL MUD PROPERTIES

Depth	5850	7340	9229	12,057	14,918	16,684
Weight, ppg	10.2	12.2	15.5	17.3	18.0	19.1
Ave. sp gr, Solids	3.0	3.7	3.8	4.0	4.1	4.2
Viscosity, sec. API	43	44	54	63	78	58
Stormer Gel, 10 min	5	10	10	10	5	5
Filtrate, cc API	9.0	5.6	1.7	1.4	0.7	2.5
pH	11.8	11.5	12.0	12.5	12.5	12.4
Oil, %	10.0	10.0	12.0	11.0	10.0	9.0
Lime, excess ppb	1¼	1½	1	2	2½	1

CASING PROGRAM

Size Inches O.D.	*Depth Set Feet*
20	159
13⅜	2002
9⅝	8942
7	14921
5 (liner)	15960
3½ (liner)	16684

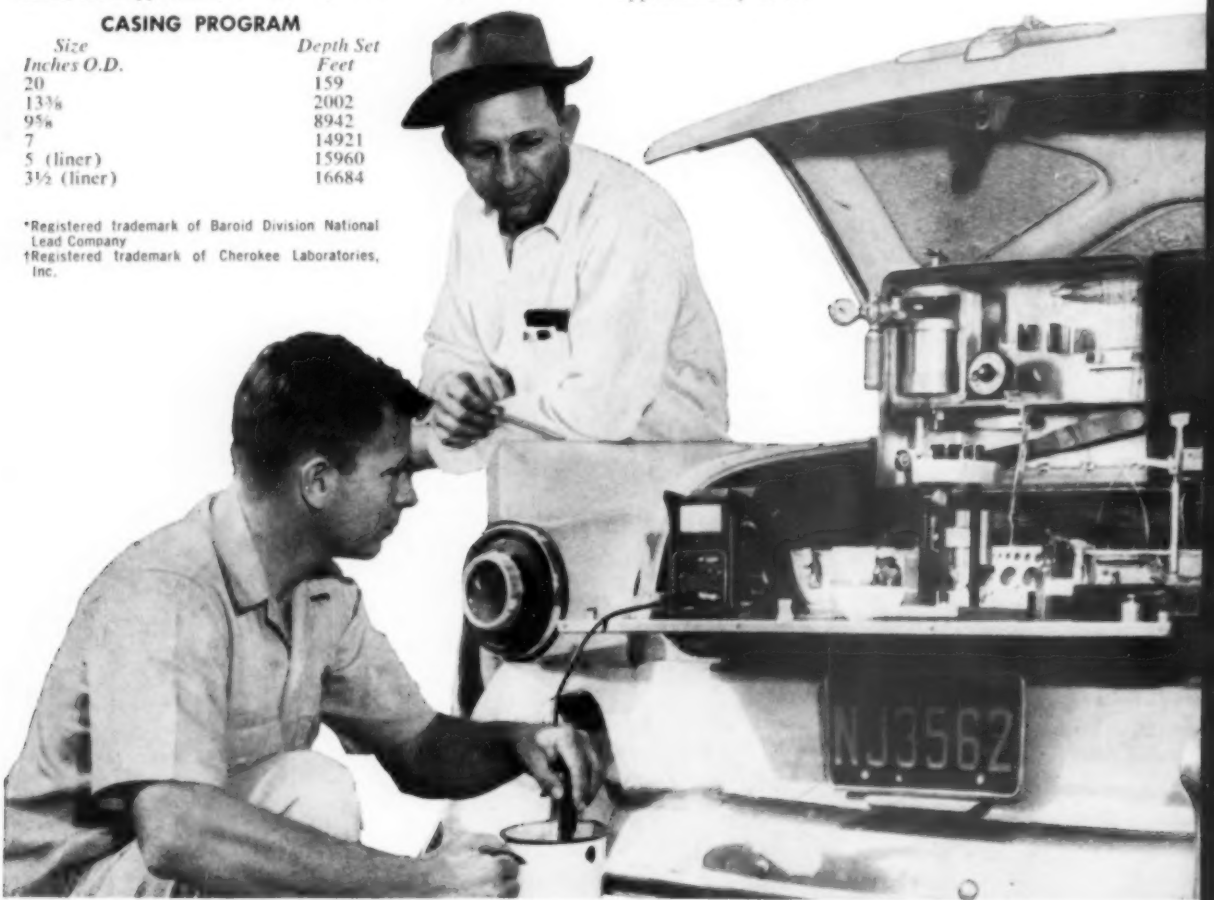
*Registered trademark of Baroid Division National Lead Company
†Registered trademark of Cherokee Laboratories, Inc.

PROBLEM: To maintain mud property stability at 356°F.

DISCUSSION: The problem of prevention of high temperature gelation, maintenance of desirable viscosity and filtration, and prevention of mud loss to formations became greater with increasing depth, mud weight and decreasing hole size. Additives used had to be compatible with all other materials in the mud and not adversely affect any other mud property.

SOLUTION: The best mud treatment was determined by conventional mud testing plus tests of treated samples aged at 25°F to 50°F above anticipated bottom hole temperatures. CARBONOX proved to be the best thinner for controlling high temperature gelation and viscosity and the most efficient additive for controlling filtration and filter cake thickness.

The Baroid Mud Centrifuge was used to separate and discard low specific gravity solids and reclaim 85 to 92% of the BAROID in the treated mud. The Mud Centrifuge helped achieve a reduction in mud maintenance cost of approximately 25%.



a Baroid Mud Program

MUD PROBLEM

...and its solution

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THINS MUD WITHOUT DILUTION
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RESISTS EFFECTS OF SALT WATER

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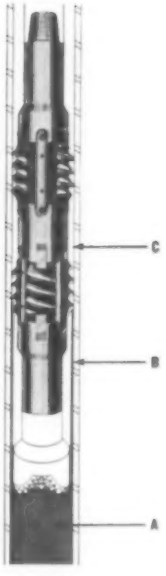

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B – This thin cement sheath, which remains after the bit has passed, often interferes with future operations.
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Economics Is Key to Lease Automation

Selecting the optimum automation method and equipment is probably influenced more by economics than by any other single factor, according to R. W. Jasper, Shell Oil Co. engineer.

Progress in the field of automation has been so rapid in the past decade that selection of the optimum method and equipment has become "quite difficult" for oil men unfamiliar with the new techniques.

But "in spite of the fact that there are no easy answers, the problem of lease automation is certainly not insurmountable," Jasper told this week's meeting of the Southwestern District, Division of Production, American Petroleum Institute, in Dallas.

Cost of automatic systems and equipment can be determined fairly easily, Jasper maintains. But most systems are still too new to furnish conclusive data on maintenance costs and equipment life.

The Shell engineer noted that lease automation in the past often was accompanied by replacement of outworn or outmoded equipment, adoption of the latest techniques in oil and gas handling, and a general improvement in operating procedure.

The resulting benefits from these changes were often erroneously credited to the automatic equipment alone. But such equipment "in reality, may have contributed only a small portion of the total savings."

The initial cost of an automatic system is easily obtained, and equipment prices can be furnished by suppliers. To these must be added installation costs, which, as a rule of thumb, can range from 15% to 30% of equipment cost.

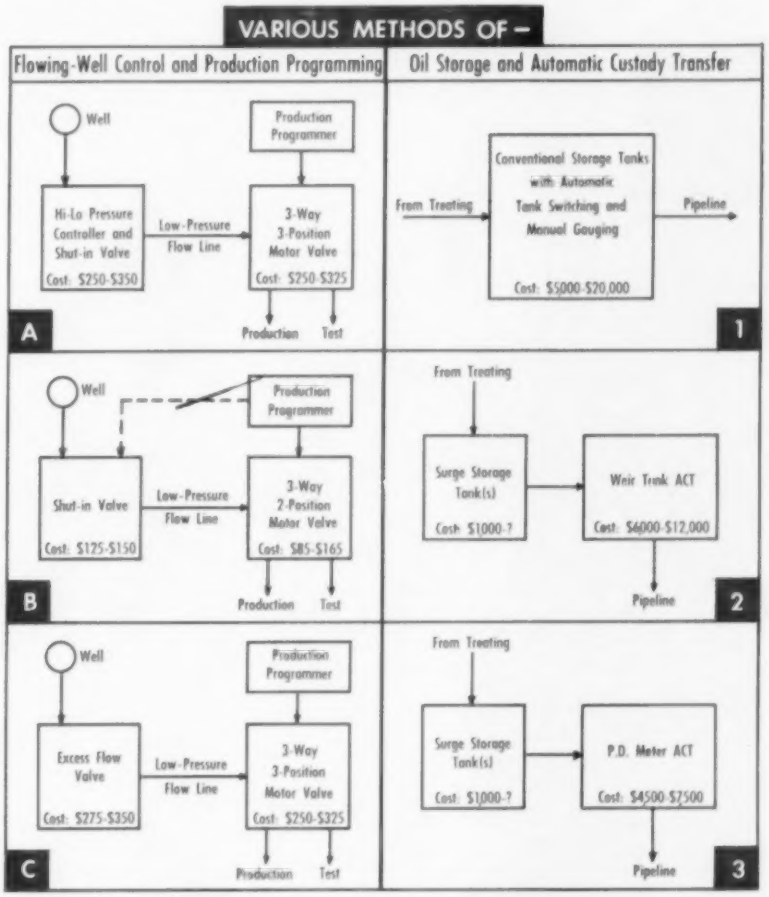
Concerning maintenance costs and equipment life, Jasper recommended that such information can probably be best obtained through equipment manufacturers.

He continued: "It is reasonable to assume that properly selected and maintained equipment should have a life of at least 15 to 20 years."

Jasper also contended that "it is not necessary to convert the entire lease (or field) to automatic operation."

In an effort to help oil men reach sound decisions on automation, Jasper reviewed the various methods used, and factors influencing their selection.

Jasper admitted that his report could not possibly include all of the many minor variations of each method. But this should not be interpreted as a recommendation against the use of any, he added.



VARIOUS METHODS can be used to carry out basic functions of lease automation. Selection hinges on many factors, of which system economics is most important.

Automatic lease operations can be divided into three functional groups, he said. These are: (1) well control and production programming; (2) well testing; and (3) storage and automatic custody transfer.

Within each of these groups, the Shell engineer noted, the many types of equipment currently available can be combined in hundreds of ways.

There are so many ways in which oil, water, and gas can be produced automatically from a well, separated, tested, metered, and shipped to a pipeline, Jasper said, "that the problem of system and equipment selection can be likened to a trip through an unknown and bewildering maze."

He added that several companies have traveled through this maze in recent years, however, so that some guideposts have been erected.

The problem of selecting a well-control and production-programming method has been increased by the growing trend toward centralization and commingling, he noted.

This situation, in which high-pressure flowing wells and low-pressure pumping wells frequently enter the same central manifold, makes selection of the optimum method "extremely difficult and merits considerable thought."

All three methods usually employed to control flowing wells permit production-programming equipment to be located at the central manifold.

The first method, which is usually installed on low-pressure flow lines, uses a three-way, three-position valve at the header to shut in the well or

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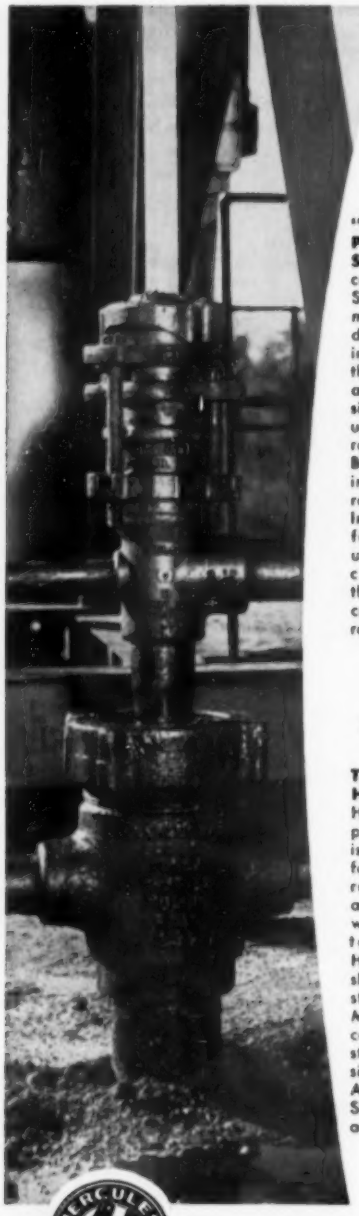

A typical set-up is shown below in Creek County, Oklahoma, using Hercules "Tee Type" Duplex Polished Rod Stuffing Box and Type "ES" Tubing Head. This is an easily assembled, effective and economical producing unit.

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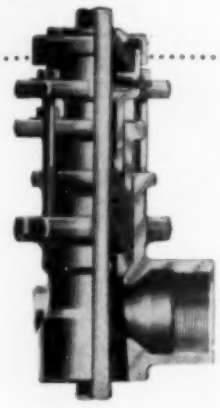

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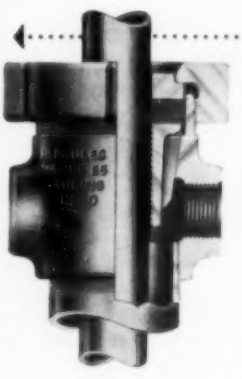

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divert flow to the test equipment. A high-low pressure controller and shut-in valve are installed at the wellhead to protect against high pressures in the flow line and flow-line breaks (A in drawing).

In some cases, a well's flowing characteristics, coupled with a high back-pressure resulting from a long flow line, have nullified the low-pressure shut-in safety feature of the first method.

Under these conditions, the second method, which involves a three-way, two-position valve at the well, has been used successfully (B in drawing). This method, however, requires that electrical control wires be routed to each well entering the manifold.

The third method can be used where high-pressure flow lines have been installed (C in drawing). With this method, an excess-flow valve, used as the wellhead safety control, shuts in the well only if the flow rate exceeds a predetermined value, as would be the case for flow-line breaks.

The use of high-pressure flow lines permits locating chokes at the central manifold and also tends to reduce paraffin deposition in the lines by keeping the lighter ends in solution.

There are four basic methods for controlling pumping wells, he added.

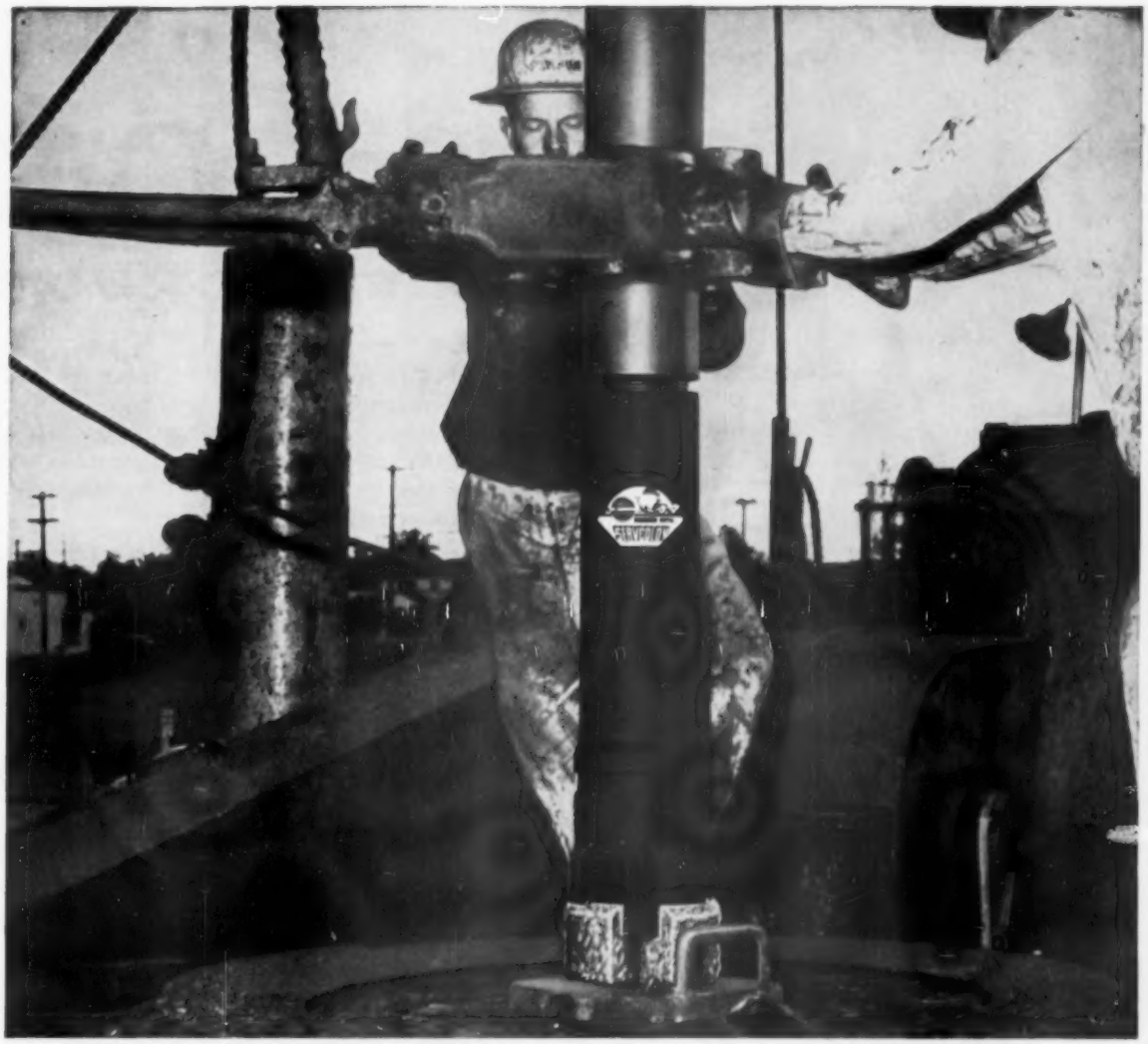
Jasper included only electric-motor-driven beam pumping units in his roundup. But he said that other types of artificial lift also can be automated.

The first method consists of a three-way, three-position motor valve at the header and a pressure switch at the wellhead to shut down the pumping unit when flow-line pressure increases. It is usually selected when centralized programming is desired and the well produces dead fluid.

The second method involves installation of production-programming equipment at the wellhead. A three-way, two-position valve is used at the manifold to divert the fluid to the test equipment. In emergencies, alarm signals close in the main block valve or valves in the manifold. Pressure switches at each well shut down the pumping units when flow-line pressure increases.

In some cases, a well will flow for an indefinite period after the pumping unit has stopped, and actuation of a pressure switch will have no immediate effect on the production rate. Under these conditions, Jasper said, three-way, two position motor valves can be installed in the manifold. In cases of alarm, all lease production is diverted to emergency or overflow storage. Production-programming equipment is located at the well.

This method is frequently used on



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A six-inch Servco CJ Junk Mill dressed with Servcoloy, was then run in the hole. A total of two feet of hole was drilled in a period of two hours of milling. The operator ran back with a bit and proceeded to drill a head. Fine steel cuttings were caught on the shaker during the milling and appeared on the mud screen during the succeeding day, showing that the *cones were actually milled up, not sidetracked.*

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dead-lift wells as an alternative to the second method, when the necessary overflow tankage is available, or when there are so many wells that the cost of installing pressure switches is prohibitive.

The fourth method is normally used when pressure-switch operation will not affect the production rate, and where centralized programming is considered necessary. This method, however, requires the installation of control wires to the pumping unit of each well connected to the manifold.

Selection of well-testing and metering equipment hinges on type of metering equipment desired and the relative importance of oil, water, and gas measurements, Jasper said.

For example, he said, measurement of total fluid is required in waterflood operations for accurate sweep-efficiency calculations. Gas measurement is not too important.

Conversely, for wells which are penalized by high gas-oil ratios, gas measurement is quite critical, whereas water-metering equipment may in some cases be omitted.

The selection of gas- and fluid metering equipment should not be made until the merits and ramifications of each method are thoroughly evaluated, he recommended.

Jasper noted that since testing equipment is installed for the sole purpose of collecting data, the data-accumulation system should be chosen with as much care and detailed attention as the metering equipment.

The general acceptance of automatic custody transfer (ACT) has rendered tank switchers obsolete, Jasper reported.

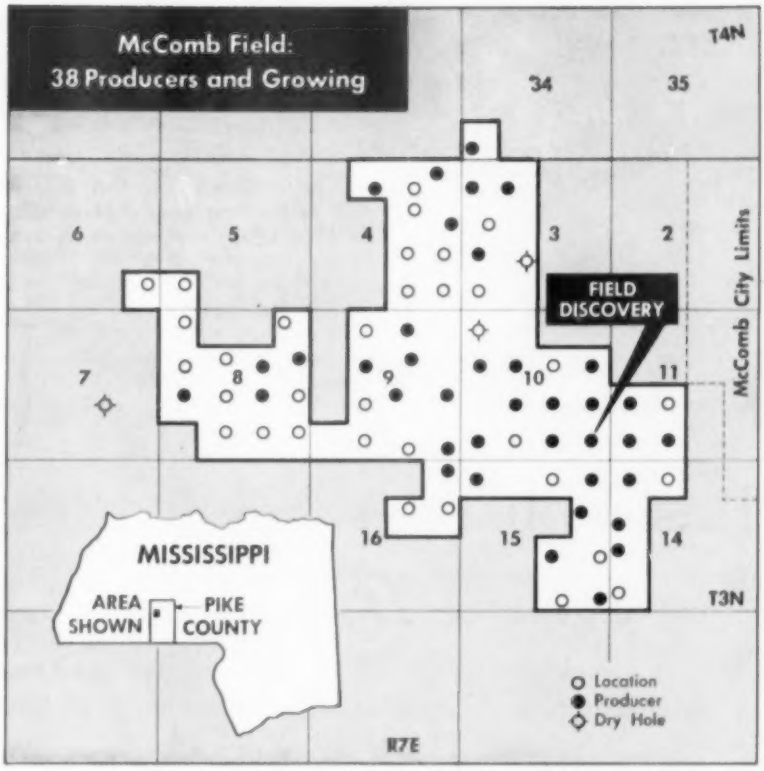
Many such automatic tank switchers were installed during the early days of automatic lease operation. The Shell engineer added that both the weir, or dump, tank, and the positive-displacement-meter ACT systems will meter oil with an accuracy equal to, if not better than, hand gauging.

Jasper said that, in general, weir-tank systems are usually more complex than the PD-meter systems, and require more auxiliary equipment.

On the other hand, unless a severe paraffin-deposition problem exists, weir tanks do not have to be calibrated or inspected frequently, as do PD meters. He added that efforts are being made toward reducing the frequency of PD-meter calibration.

"As more experience is gained with these meters, bimonthly, quarterly, or even semiannual calibrations may become commonplace," Jasper said.

He added that electrical control systems are very important, too, and should be as foolproof as possible.



WELLS are added at a rate of almost one a week in this fast-moving oil play as . . .

McComb Field Paces Mississippi

A mushrooming oil play in southern Mississippi's Pike County has nailed down the lead in the state's drilling activity.

The play is located on the western outskirts of the town of McComb, 10 mi. southwest of Mississippi's 1958-59 hot spot—Little Creek field.

Production is from the Lower Tuscaloosa (Upper Cretaceous) zone, the same as at Little Creek field.

At last report, there were 38 producing wells and 25 active rigs in the area, which has been designated as McComb field.

Close observers say this heavy activity is the main reason why there were 72 rigs active in Mississippi as of Feb. 1 this year, compared with 55 at the same time a year ago.

Some 20 successful completions were made in the field, which is just six months old, before a dry hole was drilled.

An allowable of 150 b/d per well for McComb producers went into effect this week. Prior to this, wells had been producing since Jan. 1 under an emergency allowable of 300 b/d per well.

The state oil and gas board, in setting the 150 b/d allowable (based on the most efficient rate of production), found that bottomhole pressure was declining.

State policy has been to leave production from below 10,000 ft. unrestricted until bottomhole pressure is adversely affected.

Spacing is on a 40-acre basis.

Emil Monsour, geologist for Sun Oil Co., which opened up the field, says that on the basis of what is already known in McComb field, recoverable crude is estimated at between 25-million and 50-million bbl.

The field's production limits are far from outlined. It appears so far that just one small edge on the northeast side has been defined.

In this area, two dry holes were drilled in sections 3 and 10, where a shale barrier was encountered.

One other dry hole—Elam et al No. 1 Hewett—was drilled in section 7 as the most westerly test so far.

The play is tentatively considered still open on the west, however, since only one dry hole has been drilled on that side.

The productive Lower Tuscaloosa zone has been running slightly deeper

at McComb than at Little Creek, to the north.

Production at McComb has been from 10,850-900 ft., whereas at Little Creek the productive range is around 10,700-800 ft.

Thickness of the pay is between 18 ft. and 22 ft., somewhat thinner than at Little Creek, where it averages around 40 ft.

The gas-oil ratio at McComb ranges from 700:1 to 1,000:1. Consequently, a considerable amount of gas is being flared.

Sun Oil Co. is building a natural gasoline plant at the field, which is scheduled for operation Apr. 15.

The plant will be used to strip butane, propane, and natural gasoline from casinghead gas.

The dry gas will be sold temporarily to a gas transmission line, but plans call for the gas to be recycled into the reservoir in the future.

The McComb pay was touched off by the completion of Hughes-Sun Oil No. 1 Pope et al, section 10-7e-3n, about 1 mi. west of the city limits of McComb.

Observers in the area at first viewed the discovery with little interest.

Summit field—between McComb and Little Creek—had generated a great deal of interest and then had faded. But when Sun, with most of its leases in the McComb area nearing expiration, moved in quickly and started more drilling, interest jumped considerably.

The proximity of the discovery to the city limits sparked a lease play that covered townlots, city parks, and even the city airport.

And local citizens formed groups to drill tests.

In fact, the majority of the drilling in the McComb area has been done by these groups, or by independents.

There are just two major companies active in the play—Sun, and Shell Oil Co., which, at last report, had just one producer, the northernmost.

Basic Changes Needed for Turbodrills

- **Shell's Bingman recommends the redesigning of turbodrills to provide optimum conditions at the bit.**
- **Better rock bits are required, too. And agreement is needed on basic design considerations for diamond bits.**

Basic research in bit design and significant changes in turbodrills should be made before further field-testing of turbodrilling can be recommended, says W. E. Bingman, of Shell Oil Co.

Bingman, reporting on the status of turbodrilling in the U.S., added that current turbodrill equipment, bits, and techniques have been adequately tested already "under our drilling and economic conditions."

U.S. development of the turbodrill was "mothballed" a few months ago by Dresser Industries, Inc., until bit and equipment research and development justify a new program (PW—Aug.28'59,p20).

Bingman says the footage obtained with rock bits on the turbodrill was insufficient for economic operation, and performance of diamond bits was too inconsistent.

Addressing the meeting of the Southwestern District, Division of Production, American Petroleum Institute, in Dallas this week, Bingman said:

"Certainly, the industry recognizes the need for research in developing a better drilling method using some downhole power unit.

"Such a method should ultimately offer the best opportunity for drastically reducing drilling costs of our deeper, more-difficult, directionally controlled wells."

Bingman feels that the major problem that has prevented turbodrill success to date—poor bit performance—might be best attacked by designing a downhole tool to fit current bit design, rather than vice-versa.

The Shell engineer noted that turbodrill characteristics and limitations are believed to have contributed greatly to the poor performance level of available bits.

"A tool should be designed to approach the upper speed limit of rock-bit endurance," he added, "without causing a drastic reduction in cutting efficiency [penetration per revolution].

"The field tests of the turbodrill have shown that present turbine speeds are too high for rock bits, and the torque is too low for diamond bits." There is a need for more bit weight.

"This suggests that a tool having higher torque and lower speed [perhaps the same horsepower] should perform better with both diamond bits and rock bits than present turbodrills."

Bingman suggested that a few mechanical improvements also should be incorporated into the new tool, such as a better turbine-shaft seal, relocation of the thrust bearings for field service, and the like.

Better turbodrill rock bits undoubtedly can be developed, he believes. But many basic factors influencing diamond-bit performance must be determined before this type of bit can be used economically on turbodrills.

Concerning rock bits, Bingman said that development of a suitable design will take "considerable" time and effort. In addition to the bearing problem, which is being studied, there also is the problem of modifying the cutting structure to improve the cutting efficiency at high speeds.

The bearing problem is eliminated in the diamond bit. But, Bingman said, the need for more basic diamond-bit research is apparent from the fact that "even the manufacturers are not in agreement on basic design considerations."

Some of these considerations are: (1) What is the best shape for the bit crown? (2) What determines the best diamond size, quality, exposure, and concentration? (3) What determines the best waterway design?

Bingman said the "infinite variety" of diamond-bit designs reflects the lack of agreement on these basic considerations. Surprisingly little is known, he added, about the effects of these factors, and drilling variables, on penetration rate and bit life.

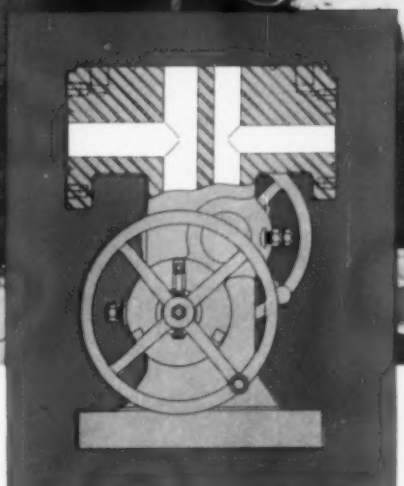
Because of the wide variation in design, field testing alone cannot adequately isolate the factors affecting diamond-bit performance.

"When the design criteria have been established, and the optimum drilling conditions have also been determined, a drilling tool can then be designed to provide the right conditions at the bit," Bingman said.

In U.S. drilling, turbodrilling will have to be able to compete on a cost-per-foot basis with rotary methods before it can be used economically.

The Shell engineer noted that turbodrilling is widely used in the Soviet Union because of the limited number of drilling rigs available compared to

"Saves space... costs less, too"



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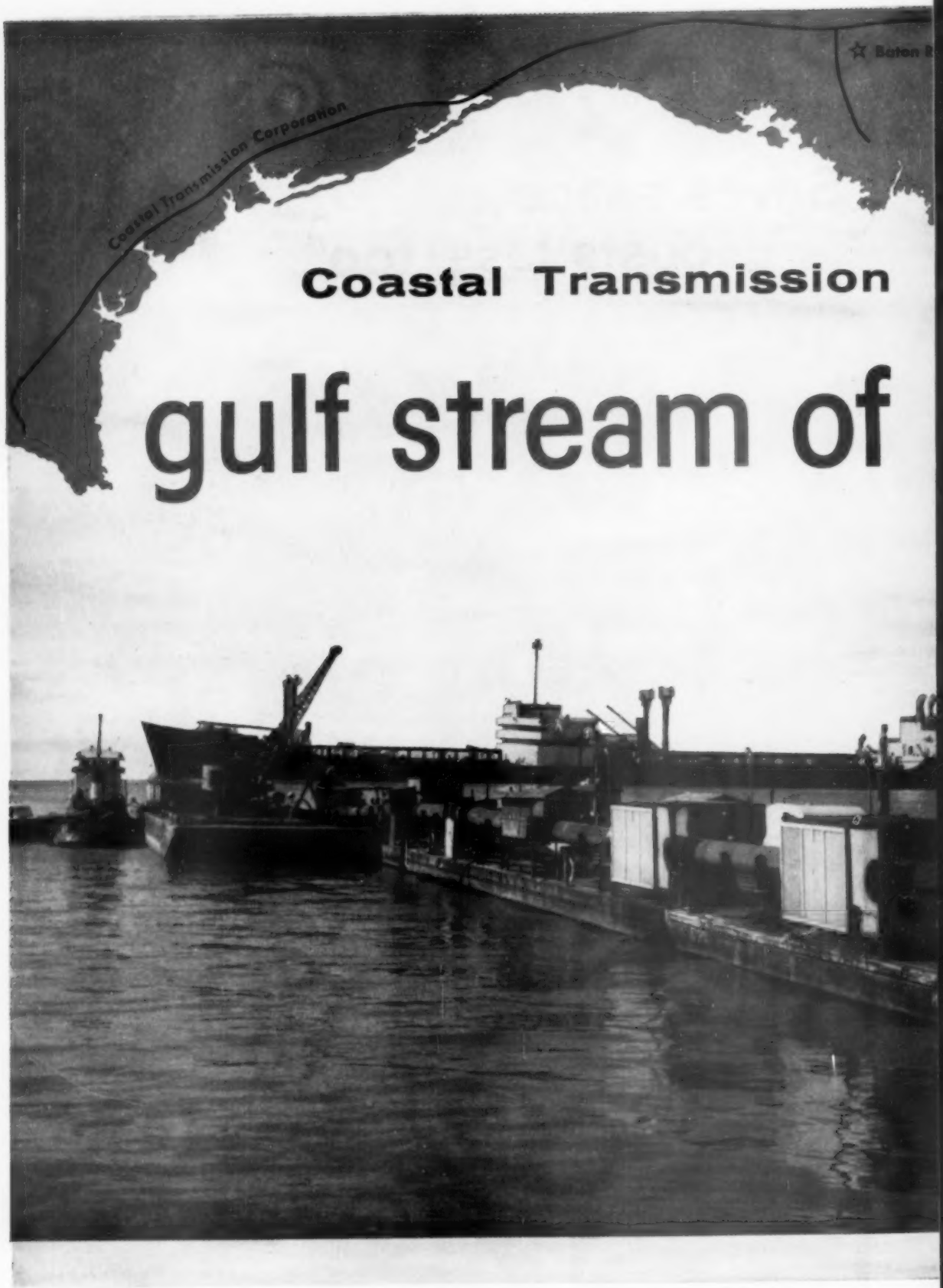
Coastal Transmission Corporation
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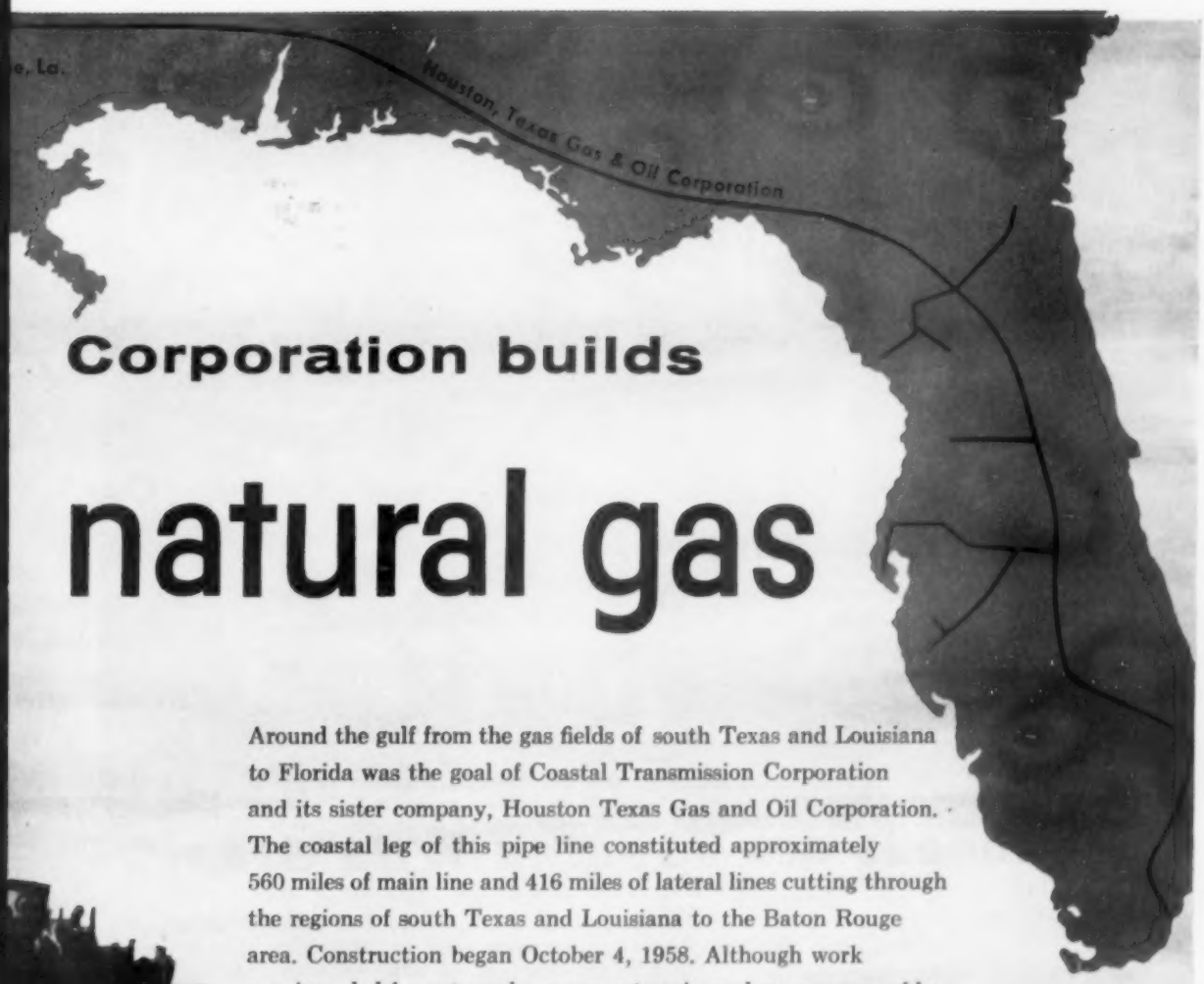

Corporation builds

natural gas

Around the gulf from the gas fields of south Texas and Louisiana to Florida was the goal of Coastal Transmission Corporation and its sister company, Houston Texas Gas and Oil Corporation. The coastal leg of this pipe line constituted approximately 560 miles of main line and 416 miles of lateral lines cutting through the regions of south Texas and Louisiana to the Baton Rouge area. Construction began October 4, 1958. Although work was impeded by extremely swampy terrain and an unseasonably wet spring, the line was completed by June of 1959.

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the number of holes that must be drilled each year. A premium price, therefore, can be paid for increasing the yearly footage drilled by each rig. But the identical turbodrill performance might not be considered commercial by Americans.

In this country, Bingman added, the over-all drilling rate and economics are influenced by other factors that have proved more important.

For example, though fewer drill collars—requiring less handling time—are used with the turbodrill, trip time is somewhat longer on the average (about the same time with rock bits, but two hours longer with diamond bits).

Additional time also is required for checking wear on the turbodrill thrust-bearing, laying down one tool and picking up another, and washing or reaming the bottom.

Downtime, too, is significantly greater with the turbodrill, Bingman said. For rotary drilling, an average of two hours per day might be spent for routine maintenance. Normally, twice that amount of downtime is required for turbodrilling, mainly for pump maintenance.

Higher rig-operating costs would be expected from higher pump-maintenance costs, but corresponding cost reductions should be obtained with lighter-weight drillpipe and less drill-collar maintenance.

With rock bits, turbodrilling penetration rates must be high enough to compensate for more downtime, less bit footage, and higher rig operating costs resulting from turbodrill rental, Bingman said.

With diamond bits, on the other hand, turbodrilling footage must be high enough to compensate for more downtime, more round-trip time, higher net bit cost, and higher rig-operating cost, resulting from turbodrill rental.

"Since turbodrilling penetration rates with rock bits seldom have exceeded three times that of the rotary." Bingman continued, "the importance of obtaining more than 60% bit footage is apparent on the curves of cost-study charts.

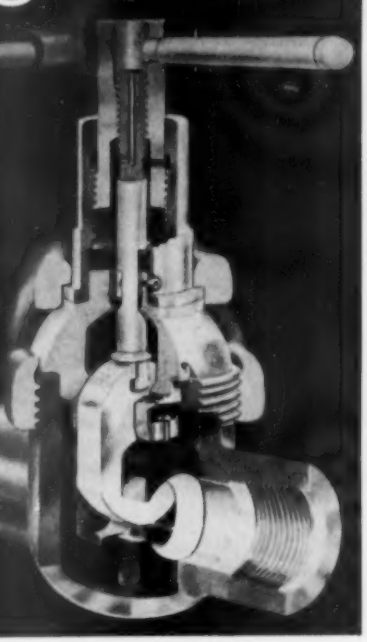
"With bit life less than three hours on the turbodrill, except in very soft formations, a very substantial increase in penetration is required to maintain such a footage ratio.

"Therefore, before turbodrilling with rock bits can compete with good rotary performance, some method must be devised for increasing rock-bit life—to five or six hours."

The potential for turbodrilling with diamond bits has been illustrated by several "very good" economical runs, Bingman noted. Inconsistency in per-

The DEMCO

MUD KING



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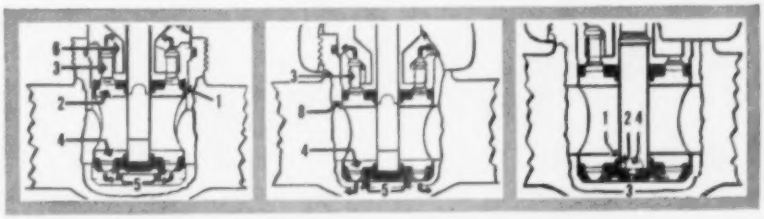
Demco's secret lies in its unique one-unit seal assembly, with its patented spread-ring construction. Here's how it works . . .



A. Resilient seat assembly (1) is reinforced with steel wear rings (2), having integral projecting pins at top (3) and bottom (4). In normal contracted position, the seat assembly is easily inserted in, removed from the body. Until the seat assembly is bottomed, the steel spread ring (5) does not act upon the lower projecting pins, nor do the bonnet legs (6) act upon the upper pins.

B. With the bonnet down and the seat assembly bottomed, the spread ring (5) has forced the lower projecting pins (4) outward. Similarly, the upper pins (3) have been wedged outward by the descending bonnet legs, providing a tight seal between body wall (8) and seat, preventing entrance of abrasives between seat and body wall.

C. As gate is closed, leading edge of gate slides past wear ring (1), contacts rubber ring (2) for positive rubber-to-metal seal. Seal occurs before gate touches rubber cushion (3), eliminating need for "bumping." Relief in bottom of gate (4) allows straddling of solid particles that might interfere with proper closure.

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formance, however, makes this approach uneconomic.

Bingman recommended several possibilities as the best applications for turbodrilling, assuming diamond bit and turbodrill modifications that eliminate premature bit failures:

He gave these criteria:

(1) The formation should be conducive to rotary diamond-bit drilling, such as sandstones, limestones, and dolomites.

(2) The mud should not adversely affect turbodrill life (by avoiding lost-circulation material, abrasive solids, low-aniline-point oil, and high temperatures).

(3) Rig hydraulics are adequate, and pumps can be operated at rated loads without excessive downtime.

(4) Rig-operating cost is high—in excess of $50 per hour.

(5) Rotary trip time is long—exceeding five hours.

(6) Rotary rock bits drill short footages—less than 70 ft.

(7) Rotary penetration is low—less than 7 ft. per hour.

(8) Rotary rock-bit life is less than 15 hours.

(9) Hole size is 9 in. or less.

Bingman said his cost study indicates that a moderate increase in penetration rate would "drastically" reduce the required diamond-bit footage for breakeven costs.

He suggested that such improvement could be obtained by better diamond-bit cleaning and higher bit weights, which would require correspondingly higher turbine torques.

Bingman believes turbodrilling should eventually prove competitive where effective bit weight cannot be used with rotary drilling—as in crooked holes, directional drilling, small hole sizes, and drilling of large surface holes.

Bingman noted that turbodrill testing has been "greatly enhanced" by use of the turbine tachometer and a flow meter.

The tachometer made it possible to operate the turbodrill at maximum horsepower, he explained, resulting in higher penetration rates. Bit weight was adjusted to control the turbine speed so that maximum horsepower was developed.

The tachometer was even more important, he continued, as an aid in the selection of optimum bit weight during reaming operations.

And since the characteristics of the turbodrill are greatly affected by the circulation rate (speed varies proportionally—torque as the square, and horsepower as the cube) an accurate knowledge of any variation in circulation rate is desirable, he said. Use of a magnetic flow meter proved "very satisfactory" for this purpose, he added.

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Strainer No. 2 is a Model 30-H. T-C Jet Strainer. It is designed to filter *450* gals. of water per minute.

The cost of the two strainers is approximately the same, considering the cost of auxiliary equipment required by the sand filter that is not needed with the Jet Strainer.

To clean the sand filter requires backwashing with filtered water. This takes time . . . costs money. The Jet Strainer can be cleaned in less than 5 minutes, requires no backwashing.

But the real pay-off is the difference in the filtering performance of the two types of strainers. The sand filter removes solids of a questionable minimum particle size . . . no algae or bacteria. The Jet Strainer can remove all solids down to 31-micron particle size with a bare screen. With a coating of filteraid on the screen the Jet Strainer removes all solids down to sub-micron particle size, including algae and bacteria!

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What's so special about the huge fractionating tower shown here? It is one more example of how Sun Ship builds and delivers heavy industrial equipment on barges or sea-going vessels, with careful attention to such requirements as safety and on-time schedule.

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J&L EXTREME LINE CASING permits running rates up to 50% faster. High quality of every length is due to J&L controlled-quality steel, accurate heat treatment, joint design, precision methods of manufacture, inspection, and testing. Manufactured under license from the National Supply Company.

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THIS NORTH DAKOTA OIL OPERATOR uses J&L Extreme Line casing for high-pressure, deep well completion. Extreme Line casing provides maximum joint strength, high running speeds and resistance to leakage.

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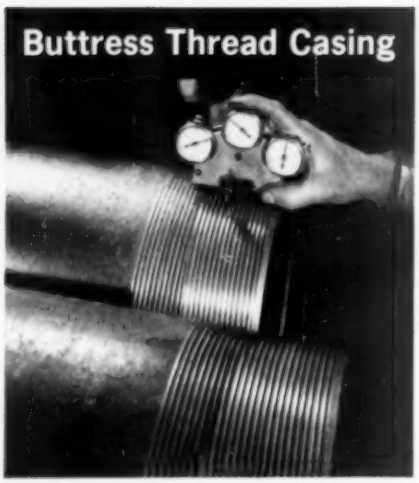

HIGH STRENGTH of J&L Buttress Thread casing is attained by combined effect of completely engaged runout threads and the three-degree flank angle of the thread. J&L's Buttress Thread production and inspection facilities are among the most advanced in the industry.

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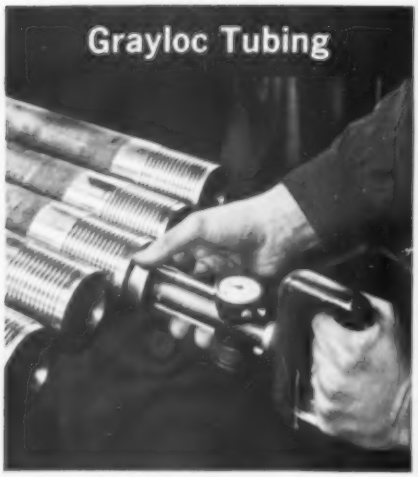

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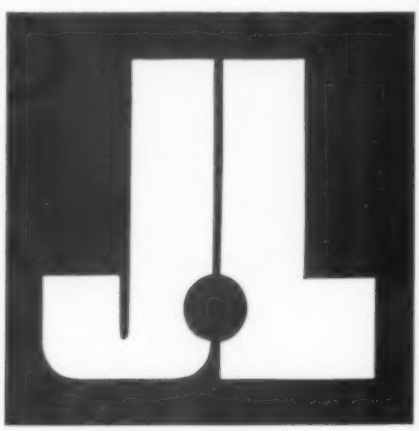

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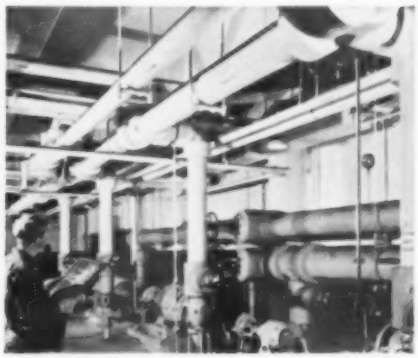

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EVERY LENGTH of J&L Electricweld line pipe is thoroughly inspected through visual examinations, hydrostatic tests, flattening tests and magnaflux examinations. It is manufactured and tested in strict compliance with appropriate A.P.I. and A.S.T.M. specifications.

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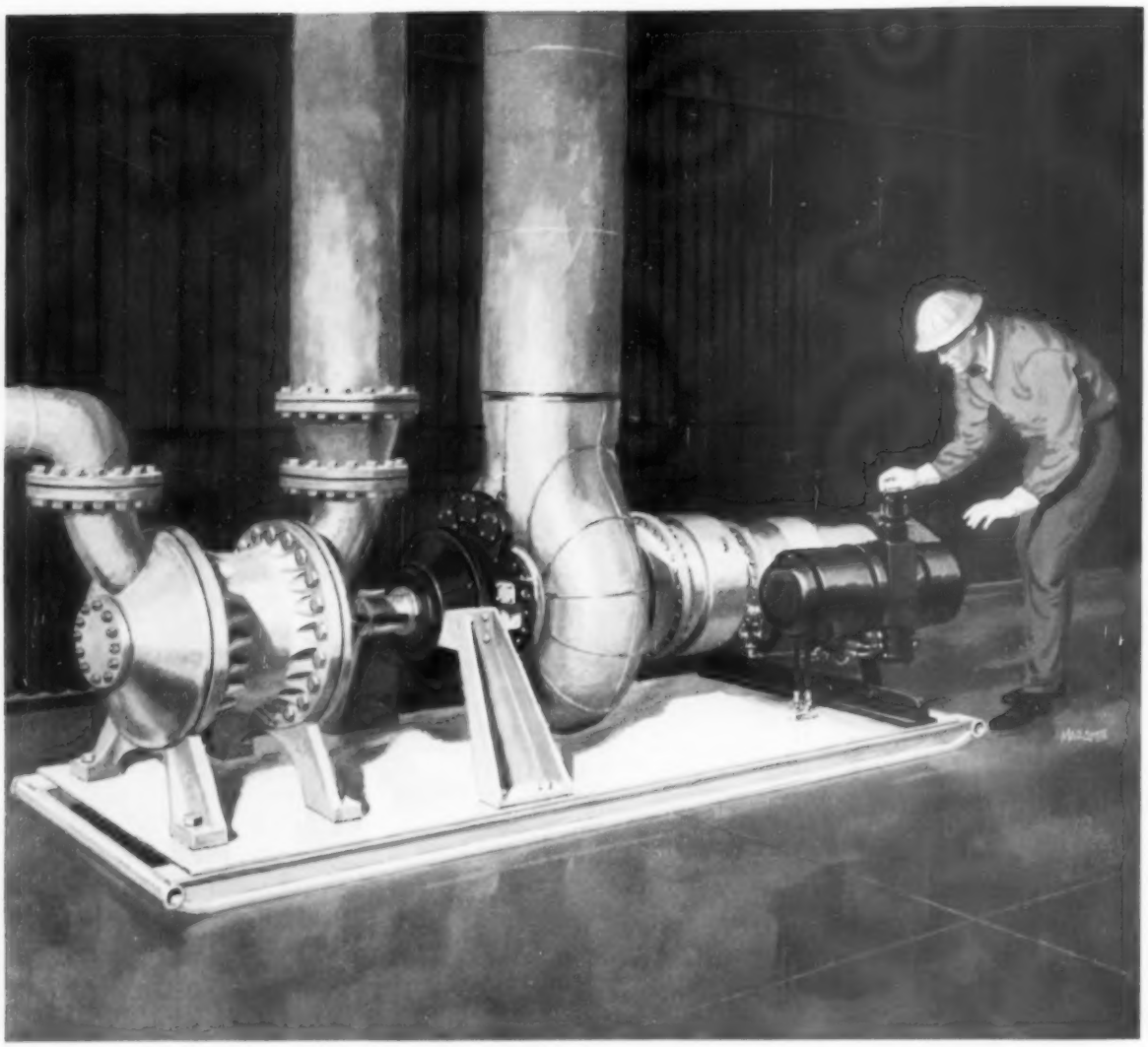

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DU PONT *Petroleum Chemicals* NEWS

Number 101 in a Series of Bulletins for the Petroleum Industry

MARCH-APRIL 1960

FOA-2 a money saver on many fronts

IN MARKETING

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Skilled psychological researchers, visiting service stations, querying customers and attendants, listening in to their questions and answers, found that motorists worry about *almost everything* concerning their cars . . . and, as you would expect, women worry about *everything*.

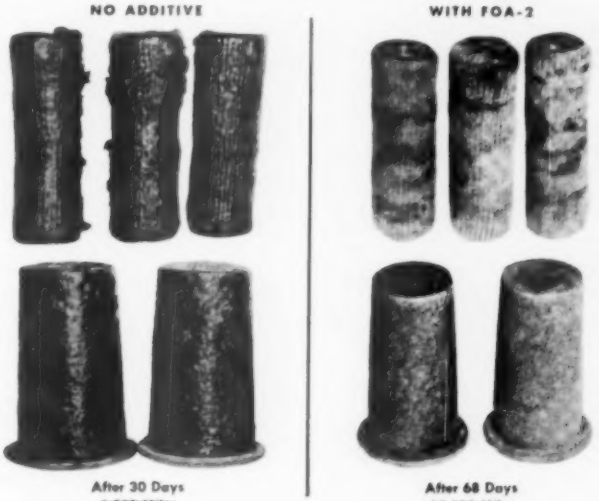
How to turn these worries into positive selling points is the subject of a series of four new folders DuPont makes available for your dealer meetings.

The four folders are concerned with those who worry about their tires, oil and oil changes, lube jobs, and lastly, the multiple worries of women. Each contains tips on how to put those worries to rest. The theory behind it all being that "If you save them worry . . . they'll save their business for you."

Refiners, large and small users, all enjoy savings

DuPont Fuel Oil Additive No. 2 provides a wide range of benefits for refiners, distributors and users. It ends the multiplying costs of sludge and gum formations which penalize everyone. Simple and economical to use, it is effective throughout the whole range of distillate fuels. Refiners have found the benefits of FOA-2 more than pay for the cost of addition.

FIGURE 10
FOA-2 RETARDS FILTER PLUGGING IN DIESEL LOCOMOTIVES



In the refinery

FOA-2 added to catalytic cracked fuel oils produces a stable product, at a fraction of the cost of other means.

It can be used to overcome incompatibility that may be encountered when blending catalytically-cracked and straight-run fuel oils.

Added to residual fuels *before* they go into storage, FOA-2 will reduce or prevent costly mechanical cleaning of storage facilities. The product may also be used gradually to disperse sludge which may already be present.

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DU PONT *Petroleum Chemicals* NEWS

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Being a nonmetallic additive, it does not add to the exhaust stack sparking problem.

FOA-2 with DMD

Pre-mixed combinations of FOA-2 and Du Pont Metal Deactivator are widely used. FOA-208 contains 8% DMD while FOA-212 contains 12% DMD.

A 24-page brochure on FOA-2 with information on properties, concentrations, handling, uses, etc., is available.

Your Petroleum Chemicals Representative will be glad to furnish you with copies of this brochure as well as additional technical information and samples for use with your own stocks, or write Petroleum Chemicals Division in Wilmington.

Golden Gate Office gets new manager

JAMES G. McILHINEY, a veteran with a diversified background in the Petroleum Chemicals Division, and a San Francisco sales representative for more than a year, is now Manager of the San Francisco District.

In his twelve years with Du Pont, Mr. McIlhiney has worked closely with many oil companies in a wide variety of marketing, technical and safety areas. He brings to his present post a thorough knowledge of conditions and needs in the field.

Born in Jersey City, N. J., he went to Cornell University, graduating in 1935 with a degree in Mechanical Engineering. Before joining Du Pont he was associated with Air Reduction Sales Company as a sales representative and engineering specialist.

With Du Pont he has been a sales service representative in the Eastern and Gulf Coast regions. In 1955 he was assigned to the division's technical group in Wilmington, Delaware. He also represented the Petroleum Chemicals Division in the Mid-Continent Region where he remained until early in 1957. Since then he has been a familiar figure in the bay area refineries.

High effectiveness at low concentrations characterizes "Ortholeum" 302 Antioxidant

New Du Pont "Ortholeum" 302 antioxidant has proved, in laboratory evaluations, to be more highly effective at considerably lower concentrations than other currently-used oxidation inhibitors.

A general purpose ashless antioxidant, it is effective as a stabilizer for greases, turbine oils, crankcase oils and synthetic lubricants.

Tests have shown that "Ortholeum" 302 frequently will provide stability for greases which fail to respond to normal concentrations of conventional antioxidants.

In turbine oils concentrations as low as 0.05 to 0.10% by weight are often more effective than higher concentrations of other antioxidants.

Tests have also suggested that "Ortholeum" 302 may prove useful as an auxiliary additive to other antioxidants in crankcase oils. Experiments with a concentration of 0.25 weight per cent in a 400 SUS solvent extracted neutral oil indicated that it did an excellent job minimizing bearing corrosion in a double-length L-4 Chevrolet engine test.

In some synthetic oils, "Ortholeum" 302 frequently exceeds the performance of widely accepted synthetic oil antioxidants in controlling viscosity changes, copper corrosion, and acid number when the oils are subjected to high-temperature oxidation tests.

Your Du Pont Petroleum Chemicals Division representative will be glad to supply more information and samples.

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OVER

ADVERTISEMENT—Prepared for the Petroleum Chemicals Division of E. I. du Pont de Nemours & Company (Inc.)

A-13616

Printed in U.S.A.

In East Texas . . .

Multipay Field Blossoms

The year-old Danville field is shaping up as a significant East Texas lower Cretaceous multipay area, producing both gas-condensate and oil.

The field, as one East Texas oil man describes it, is the kind that "brings the boys back home" from their search for new reserves in other Texas regions.

The field has six wells producing from four established pays.

These are, from the bottom up: Travis Peak, gas-condensate; lower Pettit, gas-condensate; upper Pettit, oil; and Rodessa, gas-condensate.

The present limits of the field spread into two counties—Gregg on the north and Rusk on the south—covering a strip about 2 mi. long and nearly 1 mi. wide, a few miles east of Kilgore. Each county has three producers in the field.

Dry holes apparently have defined field limits to the east and southeast. But current 1-mi. outpost tests south, southwest, west, and northwest indicate where the field may spread.

Production at Danville field is from a deep structural trap along the east flank of the big East Texas field.

Three of the four established pay zones are in the Rusk County side of the field.

Two of these three pays were established in the field discovery, F. R. Jackson and Associates No. 1 Lone Star Producing Co., just south of the county line, which was dually completed for 37-million cf/d of gas and 9.5 bbl. of condensate per million through perforations at 7,383-92 ft. in the lower Pettit, and for 1.2-million cf/d of gas plus 36.2 bbl. of condensate per million through perforations at 7,606-14 ft. in the Travis Peak.

The latest pay zone established—the Rodessa—was added to the field with the dual completion of Texaco Inc. No. 1 Lee Unit for 2.3-million cf/d of gas with a gas-liquid ratio of 67,000:1 through perforations at 6,888-93 ft. in the Rodessa, and for 3-million cf/d of gas with a gas-liquid ratio of 205,000:1 through perforations in the lower Pettit at 7,395-401 ft.

The fourth field pay—the only one yielding oil—has been found on the Gregg County side.

The discovery of oil earlier this year is credited with giving the field its biggest push forward as a multipay producing area.

The upper Pettit oil pay was established in the field with the dual completion of Tennessee Gas Transmission Co. No. 3 Mattie Gunn Meadows, for 1,002 b/d of 43.8-gravity oil through perforations at 7,364-409 ft. in the Pettit, and for gas-condensate through perforations at 7,604-10 ft. in the Travis Peak.

DANVILLE FIELD has six producers.

GSI ...1930 to 1960

Six of the 35-pound "jugs" used by GSI field parties in 1930 weighed more than the entire 24-channel, transistorized seismograph systems used by many GSI parties throughout the world today.

Research has helped cut instrument weight and increase instrument efficiency, and, research in geophysical techniques has helped cut the weight of many exploration problems.

Through research *and its application to field problems,* GSI has maintained a position of leadership in the exploration industry for three decades. In the years ahead research will play an even greater part . . . and GSI's research effort increases daily.

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Get the job done faster and better, at less cost.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

The Russians may join U.S. scientists in drilling through the earth's crust to the "Moho," according to Moscow press reports.

The Siberian Scientific Research Center also is considering other locations for such a probe. The Russians believe the project would provide valuable information about deep-lying strata, and on the possibility of tapping subterranean heat for power generation.

R. Gladkov, a Stalin prize laureate, was quoted as saying that a favorable place for the project would be 200 mi. north of Puerto Rico. He said experts from Princeton University and the University of California have suggested that a cooperative effort with the Soviet Union might be fruitful, in view of what he called the Soviets' "great experience in submarine drilling and possession of more modern, enormous drilling equipment."

Other press accounts, however, indicate the Siberian Institute, at Novosibirsk, is considering going ahead with a program of its own in Soviet territory, possibly at Yakutia or at Kamchatka.

•

Work was scheduled to start this week on drilling of ten development tests in the federally owned Teapot Dome area of Natrona County, Wyo.

In announcing the drilling program on the lands, which are a Naval Petroleum Reserve, the Navy said that the purpose was strictly profit, rather than to check drainage of the field. There hasn't been any production from the field for several years.

The ten tests will be drilled along the east flank of the field, and are projected to the Shannon sand at depths varying from 840 ft. to 1,280 ft.

Intex Oil Co. will drill the tests and also operate the field.

•

Four oil companies are now challenging Colorado's oil severance tax, which has brought in more than $19-million in revenue since 1953.

The California Co., which filed the original case contesting constitutionality of the tax, last week said it would appeal to the U.S. Supreme Court after being overruled by the state supreme court.

In addition, Pure Oil Co., Tidewater Oil Co., and Texas National Oil Co. have filed suit in Denver District Court seeking to regain $989,698 paid in taxes.

The graduated tax takes 2% of gross revenue from all oil production up to $25,000, and ranges up to 5% on production grossing more than $300,000 annually.

•

The California State Lands Commission has approved unitization agreements covering Fault Blocks II and III in the critical subsidence area of the Long Beach Naval Shipyard of Wilmington field.

The expanding waterflooding that is being conducted in the field to halt subsidence has been on a cooperative basis so far.

At last report, some 120 wells were being used to inject water into the field reservoirs.

The Navy has withheld funds to continue operation of the shipyard, which has a payroll of $42-million annually, until such agreements are "signed, sealed, and delivered."

•

Richfield Oil Corp. (L.A.), this week was in the final stage of negotiations with United Western Minerals Corp. for a 100,000-acre farmout in the Four Corners area.

The most important segment of the acreage, says Richfield, is in the north portion of the Paradox Basin in Utah.

Details of the farmout will not be disclosed pending signing of the agreement, Richfield said.

•

The Texas Railroad Commission has approved a waterflood project aimed at boosting recovery by an additional 1,900,000 bbl. from Bluff Creek reservoir, Jones and Shackelford Counties.

Delaware Basin Properties, Inc., made the request.

In addition, the commission was asked to approve a unitization and waterflood project for the Huff sand, West Sadler field, Grayson County.

Additional recovery as a result of this project is estimated at 3,688,700 bbl. Ralph Harper made the request.

•

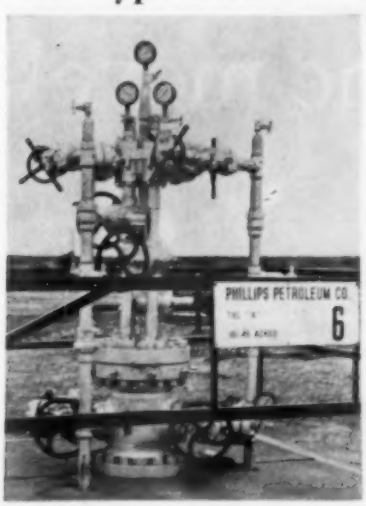
Producing Properties, Inc., has acquired an interest in 47 oil wells on 11 leases in 3 California counties from Great Lakes Oil & Chemical Co.

Production from the wells, which are located in Ventura, Kern, and Los Angeles counties, amounts to 620 net b/d.

•

Halliburton Oil Well Cementing Co. has set up a new division to

New Type Tree 'Grows' at Notrees, Texas



A new triple tubing-string hanger is incorporated in the Christmas tree assembly on this 6,475-ft., triply completed gas well near Notrees, Tex.

With the hanger, which was designed by National Supply Co., all three 2⅜-in. tubing strings are run through the center of the wellhead, with conventional closing tubing rams, in a standard blowout preventer. There is no need for special offset spools or for a blowout preventer with offset rams.

In addition, says National, each of the tubing strings can be set in pulled tension without having to stretch the tubing beyond the point at which it is set, and without removing the control equipment.

Shut-in pressures in the three pay zones are 700 psi. in the lower zone, 1,000 psi in the middle zone, and 900 psi. in the upper zone.

Management
on the move!
Wanda Petroleum Company keeps pace in fast-moving liquefied petroleum gas business with its
AERO COMMANDER
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Wanda Petroleum increases sales with Aero Commander

This Houston, Texas, firm markets liquefied petroleum gases (butanes and propane) for industrial, chemical, refining and domestic uses. In the highly competitive LP-G industry frequent contact with widespread supply sources as well as with wholesale markets is essential. Wanda keeps the airlanes hot in a circuit including Tulsa, Chicago, New York, Atlanta, Shreveport, Dallas and other market centers.

T. C. Morrow, president, says that Wanda's transportation requirements can be adequately met only by a company plane. The firm's Aero Commander, purchased in 1957, provides the necessary capacity, speed and flexibility. The plane, Morrow states, is in the air 600 hours a year. From one to six Wanda executives and a full-time pilot fly their own schedules at speeds over 225 mph.

Measures worth of company plane like any tool of business

C. H. Swanson, vice-president, sales, states: "Our Aero Commander is one of the company's modern business tools. Recently, by making stops in four major cities in one day, we closed one of the largest sales in our history. Getting the order depended on being there in time. We couldn't possibly have done it without our own airplane."

Wanda's next aircraft? "There's no question," says Mr. Morrow, "when we consider size, speed, performance, economy and safety. It will be another Aero Commander."

broaden its sales and service activity beyond its usual fields of operation.

The special products division will be engaged in developing new products, and in finding new markets for products already established for the petroleum industry, but also applicable elsewhere.

Tom E. Morton, who heads the new division, is now surveying the instrument and control needs of the oil industry's refining and transportation segments as well as other industries, Halliburton reported.

•

Engineering

A new quintuplex plunger frac pump designed for well servicing use has been developed by Frank Wheatley Pump & Valve Mfg.

The new pump, F-400, has 450 hp. and weighs 5,000 lb. It has a 2½-in. discharge and 3-in., 3½., and 4-in. plungers.

Maximum pressures are: 4-in. plunger, 6,000 psi. at 100 rpm.; 3½-in. plunger, 8,000 psi. at 100 rpm.; and 3-in. plunger, 10,000 psi. at 100 rpm. Top speed is 600 rpm., delivering 15½ bbl. per minute at 1,000 psi. with 4-in. plungers.

•

Drilling Highlights

West Texas—Mobil Oil Co. No. 1 Kathleen Moore, section 19, block 48, township 8, T&P survey, Pecos County, flowed gas at the rate of 102-million cf/d on open flow and yielded distillate at the rate of 1,500 b/d through perforation at 15,041-147 ft. in the Pennsylvanian. Surface flowing pressure, through 9/64-in. choke, was 10,240 psi. Bottomhole shut-in pressure was 12,590 psi. The wildcat flowed 175 bbl. of oil in 13 hours from a Wolfcamp (Permian) section at 10,890-95 ft. during drilling. Because of the condition of the hole, the operator will not run production tests in the Wolfcamp. The discovery is 8 mi. southwest of Coyanosa Delaware pool.

Alaska—Standard Oil Co. of California No. 41-4 Soldotna Creek Unit, Kenai Peninsula, reportedly encountered a thick section of oil sand before bottoming at 10,994 ft. Standard lent credence to the report by cementing 7-in. casing to 10,992 ft. The wildcat is the first drilled on the 70,728-acre unit, in which Standard and Richfield Oil Corp. (L.A.) share interest. The unit adjoins the south boundary of the Swanson River Unit, site of the state's only commercial oil production.

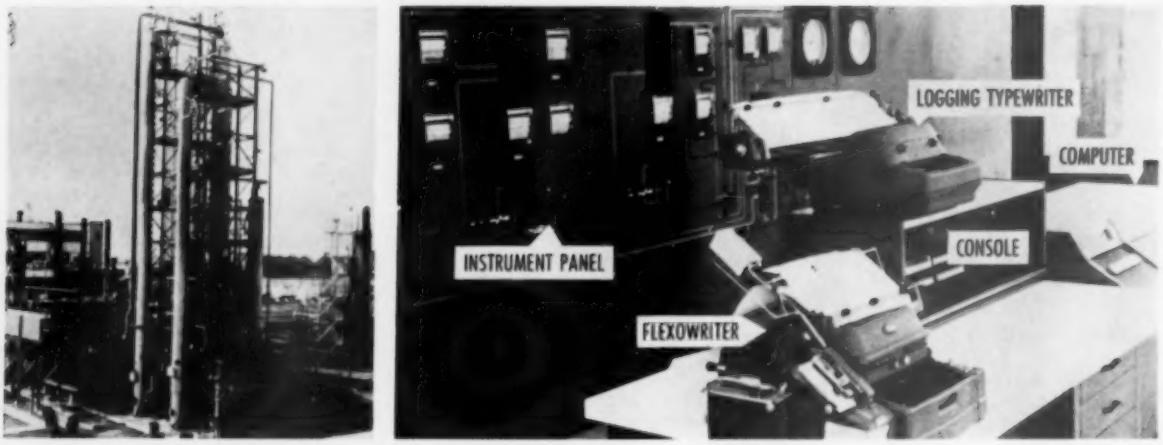
Oklahoma—Ashland Oil & Refining Co. No. 1 Stovall, section 5-8n-2e, Pottawatomie County, flowed 125 b/d of oil through ¼-in. choke and perforations at 5,138-52 ft. in the Hunton (Devonian). The discovery is 3 mi. northwest of similar production at West Burnett pool.

In Latimer County, Sinclair Oil & Gas Co. No. 1 Reneau, section 32-3n-20e, 15 mi. southeast of Wilburton pool, flowed 1,850,000 cf/d of gas on open flow through perforations at 2,340-480 ft. in the Big Fork.

North Texas—Jack Grace Production Co. No. 1-A O'Donohoe, block 95, American Tribune New Colony lands subdivision, Archer County, was completed for 864 b/d based on 4-hour flow of 144 bbl. of 42-gravity oil through ½-in. choke and perforations at 4,965-87 ft. in the Ellenburger. The discovery is located 1½ mi. east of Mankins (conglomerate) field.

Northwest Louisiana—Barnwell Drilling Co. No. 1 Mrs. E. Y. Walker et al, section 20-11n-13w, De Soto Parish, was completed as a Tuscaloosa gas discovery, flowing 3,932,000 cf/d plus a light spray of condensate through ⅜-in. choke and perforations at 2,930-38 ft. The well is 3¼ mi. northeast of Benson field.

Nebraska—Wyoming Western Oil Co., McDaniel Drilling Co., and S. D. Johnson No. 1 Hoffman, section 10-14n-57w, Kimball County, was completed for 600 b/d of oil on the pump through a casing notch at 7,007 ft. in the J sand. The well is 1 mi. west of Hoffman field, which also produces from the J sand, but where gauges have been much smaller. A dry hole separates the well from the field.



VINYL CHLORIDE MONOMER production unit at B. F. Goodrich Chemical Co.'s Calvert City (Ky.) plant (left) obeys instructions received from the Thompson-Ramo-Wooldridge RW-300 control room (right) as . . .

Electronic Computer Controls Process

Closed-loop computer control of a unit performing the thermal cracking of ethylene dichloride to vinyl chloride has been operating "beyond expectations," according to J. N. Madigan, development engineer for B. F. Goodrich Chemical Co.

This unit has been on stream since Jan. 13, 1960, at Goodrich's Calvert City (Ky.) plant. It is one of two petrochemical plants believed to be the first to operate entirely under computer control—the other being the Luling (La.) ammonia unit of Monsanto Chemical Co., which started at approximately the same date (PW—Jan.15'60,p40).

The computer, at both of these plants, is a Thompson-Ramo-Wooldridge RW-300 digital, general-purpose computer.

The heart of the control system is a master program called "executive routine." It is essentially a timing diagram for all of the duty cycles that the computer performs.

The first step taken by the computer, in normal operation, is to run a check on itself. Its main purpose in doing this is to send out and receive a test signal that checks the satisfactory conversion of analog impulses to digital impulses in the computer, and vice-versa. A "stop signal" calls the operator's attention in case of a failure.

Once the computer has passed this test, it reads automatically a digital clock. Then it goes into its act, and follows a list of five regular duties, programmed beforehand for timing and priority.

• Every 5 minutes, the vinyl chloride process is "scanned," which means that every instrument is checked and a record is made on a "Flexowriter" in red if the reading is not within the proper range.

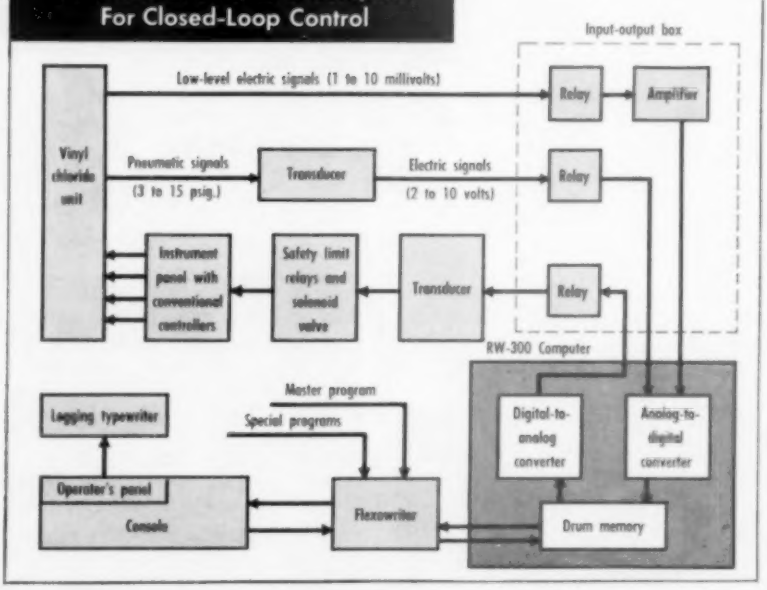
• Every 20 minutes, all process set points are checked, and changed if necessary, to maintain optimum reactor conditions, as calculated by the eight-hour optimizations (see below).

• Every hour, the process is "logged," which means that all process variables are automatically recorded on the "logging typewriter." All records of flows are hourly averages of the 5-minute scans, and the pressures and temperatures are instantaneous readings.

• Every 8 hours, the process is "optimized," which means that the basic process equations are checked, with new coefficients when necessary to take care of any changes in operating conditions.

• Every 24 hours, a daily log of the process is written on the logging typewriter. These daily logs give "a

How Goodrich Uses a Computer For Closed-Loop Control



with Davison Catalysts

Your stack carries away regeneration gases —not catalyst—when you put Davison in your unit. Here's why:

With Davison Catalysts you get the lowest amount of unretainable fines.

With Davison Catalysts you get lower attrition. The lower breakdown rate of Davison Catalysts means you get the fines you need without light particles escaping up the stack.

The reason: *balanced density*. There's a Davison Catalyst to suit your application. Write Department 411P today for Product Service Bulletin No. 59-101.

W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
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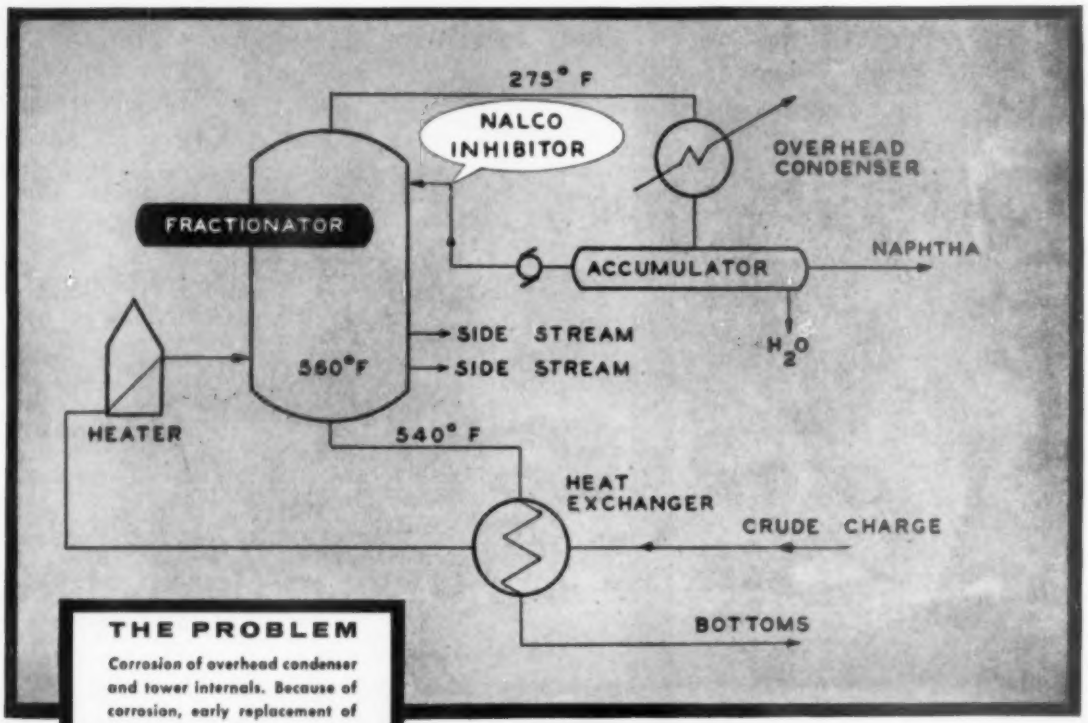
HOW *Nalco* INHIBITORS CUT DOWNTIME 74% ...AND SAVED THIS FRACTIONATING TOWER



THE PROBLEM

Corrosion of overhead condenser and tower internals. Because of corrosion, early replacement of the tower was contemplated.

THE TREATMENT

Nalco Corrosion and Fouling Inhibitor applied into overhead reflux.

THE RESULT

In this case only one point of application protected both fractionator and overhead equipment. Iron in accumulator water brought below 0.5 ppm as compared to previous 100-150 ppm. Corrosion and plugging stopped, tower saved, and downtime for cleaning reduced by 74%.

EFFECTIVE Nalco corrosion control is very low-cost protection. For example, this refinery not only avoided the cost of a new tower, but cleaner tower internals actually resulted in better fractionation and higher quality products. If you would like further facts on Nalco Corrosion and Fouling Inhibitors, ask your Nalco Representative or write direct.

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THE *Nalco* ® SYSTEM ...SERVING INDUSTRY THROUGH PRACTICAL APPLIED SCIENCE

Nalco CHEMICALS

rather complete engineering analysis of the day's operation," including totalized flows and efficiencies.

The step of the executive routine referred to as "eight hour optimization" is the basic starting point of the control: It calculates optimum conditions for the vinyl reactor.

The main conditions upon which the computer has control are feed rate, temperatures, and conversion rate. These are based on a monthly production goal. When the goal is changed, or when the process itself introduces some variations—such as, for example, impurities in the feedstock—the changes are taken care of automatically by the computer.

The values of temperatures, flows, levels, and pressures, and the impulses necessary to change the process set points, are transmitted between the process unit and the computer in the form of pneumatic and electrical signals.

Temperatures—measured by thermocouples—are transmitted as low-level electrical signals (from 1 to 10 millivolts), which must be amplified in the "input-output section" before reaching the computer.

Pressures, flows, and levels are transmitted as pneumatic signals, ranging from 3 to 15 psig., to transducers, which convert them into electrical signals of 2 to 10 volts, before reaching the computer.

Upon reaching the computer, all these process variables are converted from analog to digital signals. Conversely, the output instructions of the computer must be converted from digital to analog impulses, before being transmitted to the mechanism that readjusts the set points.

The computer can also perform certain other operations, while doing its normal job. For example:

- It can answer a request for a "demand log," which is a type-out of the instantaneous instrument readings.
- It can obey a "card read" request, for the purpose of making certain changes, indicated on a prepunched card fed through the Flexowriter.
- It can make the calculations on any one of four standard analyses for a mass spectrometer installed as an off-the-line instrument in the plant.

The same computer will presently be connected to an acrylonitrile production unit, in addition to the vinyl-chloride unit. Some portions of this installation are already in place, and it will be completed soon after a final evaluation of some of the transducers is done.

Goodrich has high hopes for the unit, Madigan says.

"The equipment appears to be at least an order of magnitude more reliable than process instruments, and much more reliable than the nontransistorized computer that I have had experience with," he told a symposium on computer-controlled processes in Chicago last week.

Small Turbines Have Choosy Appetites

Very few fuels today operate satisfactorily in the small gas turbine—below 500 hp.—which is finding increasing applications, mostly with the armed forces.

Many fuels perform satisfactorily in aircraft jet turbines; and the heavy-duty gas turbine also operates well with a wide range of fuels.

But the small gas turbine, which has a great potential use in the automotive industry and for marine applications, is a horse of another color.

This conclusion was reported by M. J. Boegel and J. P. Wagner, of the automotive engineering division of Gulf Research & Development Co., to the recent Detroit meeting of the Society of Automotive Engineers.

For the tests, a Boeing 502-10C engine was selected as typical. It is rated at 200 hp. at 80F ambient temperature. It consists of a centrifugal compressor which supplies air to two combustors, into which the liquid fuel is injected.

The combustion gases are directed at the blades of a single-stage, axial-flow turbine, which drives the air compressor and, through reduction gears, the auxiliary equipment. The combustion gases that leave the first turbine are directed through a nozzle ring into a second single-stage, axial-flow "power turbine"; then they are released to the atmosphere.

The rated speed of the power turbine is 26,000 rpm., which, through proper gearing, is reduced to 2,920 rpm. at the throughput shaft.

Of 28 fuels tested—all readily available in refineries—fewer than half were pronounced acceptable for the small gas turbine.

The fuels tested ranged from a low-octane gasoline to a No. 2 fuel oil. Some were straight-run products; others contained various proportions of cracked material, generally hydrogen-treated.

The principal objection to many of the fuels is their tendency to deposit carbon in the combustor.

When this carbon builds up, it cuts down the air admission, with a resulting loss of power. And some of it is blown off into the nozzles of the first turbine, where it may build up until it scrapes the turbine blades and causes serious damage.

A second objectionable feature of many of the fuels is their tendency to produce a smoky exhaust.

The tests showed a close relationship between the tendency of the fuels to form carbon deposits and their tendency to smoke.

Some tests were conducted on light-duty cycles, of 4 minutes each, for 3 and 6 hours, with shaft speeds from 500 rpm. to 1,200 rpm. Others were done on heavy-duty cycles, of 20 minutes each for 10 hours, with shaft speeds up to 2,700 rpm. Finally, 100-hour maximum-power tests were run.

The tests showed that, except for a low-octane gasoline, fuels containing an appreciable percentage of cracked stocks do not perform satisfactorily.

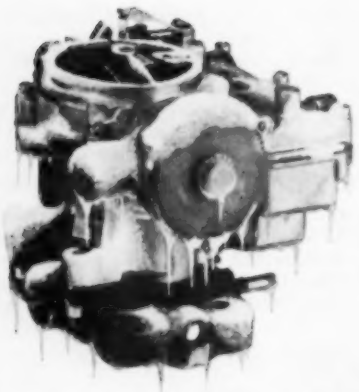
The cleanest-burning fuels were the military jet fuels, of the JP-4 type, closely followed by kerosine, and the low-octane, clear gasoline. No. 1 straight-run diesel fuel containing less than 30% cracked material was marginal.

Tests were also run with amyl nitrate additive in several fuels. The difference in performance proved to be insignificant.

Amyl nitrate in concentration of 0.5% was added to several of the fuel oils. But very little improvement, if any, was found, the Gulf engineers said. On the other hand, addition of 2.5% of TEL to the low-grade gasoline improved its combustion performance substantially.

Several fuel properties can be used to predict the combustor-deposit tendencies of fuels in small turbine engines, the Gulf engineers reported.

Properties that give a reasonable correlation are the hydrogen-carbon ratio and the naphthalene content of the fuels. In a more practical way, but with less accuracy, the smoke-lamp test, the luminosity number, and the aromatic content of the fuels can be used as an index.



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FIGHTS CARBURETOR ICING ECONOMICALLY

Even under the most critical carburetor icing conditions, S-41-K at about 50 ppm stops stalling and rough idle economically.
At the same time—for no extra cost—S-41-K offers year-round protection against troublesome carburetor deposits.

CHEMURGIC RESEARCH for Industry

WRITE TODAY for your copy of the S-41-K booklet reviewing extensive engine research, road testing and statistical data.

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Title_____
Company_____
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Send your request to . . .

CHEMURGY DIVISION
Central Soya Co., Inc.
1825 N. Laramie Ave., Chicago, Illinois

What's New / IN PROCESSING

Russian scientists are reportedly working on a project for the direct conversion of oil into petrochemical products. They are apparently banking on the use of nuclear radiation—radiation thermal cracking—to produce directly synthetic plastics and rubber, alcohol, and medical substances, without going through the conventional intermediate stages.

This approach to the direct manufacture of chemicals has been considered for some time in the U.S., but so far has failed to show any great economic advantage over conventional methods.

•

The work force at American Oil Co.'s Texas City refinery will be cut by about 7%, effective Apr. 19.

According to Amoco, the reductions were caused by two general conditions—cutbacks in crude runs and improved operating techniques.

B. F. Babin, plant manager, says the oversupply picture also figured in the decision. "We have shut down one unit, and reduced our crude runs to about 100,000 b/d—about the same level we operated during the recent strike, with far fewer employees," he says.

Each of the approximately 90 employees affected will be offered "liberal service benefits based on years of service." A special placement office is being set up to locate new, permanent jobs.

•

Imperial Oil Ltd. expects to have a 100,000-bbl.-a-year liquid asphalt plant on stream by June at its Edmonton refinery. The plant, to cost $210,000, will include a blender, three tanks, pumps, and piping. It will supplement a 280,000-bbl.-a-year solid asphalt plant already in operation at the refinery.

•

Maintaining the growth rate of synthetic organic chemicals is the big problem confronting the chemical industry today, according to Dr. R. L. Bateman, director of market development for Union Carbide Chemicals Co.

He told the Petroleum Symposium of the American Chemical Society's regional meeting in Philadelphia last week that this over-all goal can be achieved only if the industry meets specific challenges in six key areas. These are raw materials, research and development, capacity and demand, foreign competition, technical manpower requirements, and market development.

•

Solar Nitrogen Chemicals, Inc., last week announced start-up of a $2-million expansion at its Lima (Ohio) plant.

The company, a jointly owned subsidiary of Atlas Powder Co. and Standard Oil Co. (Ohio), will expand the plant's ammonia, urea, nitric acid, and nitrate facilities.

•

California's Gov. Edmund G. Brown last week announced a special call of the state legislature to consider his recommendations on air-pollution control.

The Governor says his program will aim to control contaminants discharged from motor vehicles. To do this he wants: a $1.4-million lab to test some twenty or more exhaust-control devices; a motor vehicle pollution control board; compulsory use of exhaust devices on all motor vehicles in air-polluted counties; punitive power to subject a motor vehicle owner to fine and imprisonment for failure to install the required device.

•

Two British firms will supply Communist East Germany with design and engineering knowhow for a 40,000-ton-per-year ethylene plant.

Humphreys & Glasgow, Ltd., and Petrocarbon Developments, Ltd., have signed a contract for the first phase of an $11.2-million plant to be ready by December, 1962.

The announcement closely follows Imperial Chemical Industries' recent decision to supply four Communist countries, including East Germany, with technical information for increasing polyethylene output.

•

Phillips Petroleum Co. is now owner and operator of the Tunstill gasoline plant, located near Orla, Tex., 40 mi. northwest of Pecos. The plant processes natural gas from the Tunstill, Mason, and North Mason fields.

COMPLETE CATALYST SERVICE (BRAINPOWER INCLUDED)

Looking at catalyst samples won't usually show you why one may be better than another of the same general type. Look at plant operating figures, though, and you may see a different story.

That's why getting the right catalyst—for your process, for your plant—usually involves much more than simply buying "off the shelf." Houdry's catalyst service staff has the facts to prove it.

Over and over again, Houdry's process experience has been a major factor in helping processors select the right catalyst, and in helping to get maximum usefulness from it. Process experience is also especially valuable when a custom catalyst must be designed and manufactured.

Houdry's catalyst service is based on more than 30 years of commercial experience in process design and operation and catalyst development and manufacture. This service is Houdry's way of putting "brainpower" into the "package", to help you get the results you want when you select any of Houdry's wide range of catalysts.

It's a good idea to get in touch with Houdry on *any* catalyst problem. There's a good chance that, in solving problems for others, Houdry may have already found the solution for yours.

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Iran Wants Ambitious Oil Export Rise

TEHERAN—Iran has served notice that it will "insist" that the International Consortium companies raise their rate of oil exports in proportion to the huge oil reserves of their operating area in south Iran.

This was announced in Teheran by Abdollah Entezam, chairman of National Iranian Oil Co. in a speech outlining the government company's objectives for the next five years.

NIOC, Entezam said, "will spare no effort" in carrying out Iran's aim to increase oil exports.

Iran also aims to "ensure" that the Consortium extend its operations to discover new oil fields in the next five years with "adequate reserves" to meet production requirements from 1968 onwards, Entezam added.

Further, National Iranian Oil Co. aims to export crude under its joint venture agreements with Italy's state-owned Agip Mineraria and with Pan American International Oil Co.

This would be achieved through participation in production projects of SIRIP and IPAC when exploration by these companies obtains the "expected" results.

SIRIP is the operating company NIOC owns jointly with Agip, and IPAC the one owned jointly with Pan American.

In the agreements with Agip and Pan American, Entezam said, NIOC succeeded not only in "placing the share of profits on a 75%-25% basis," but also in participating "in all operations" of the new joint companies, thus finding "an entree to the international market."

On its own, NIOC itself has discovered "vast resources" in northern Iran—such as the Sarajeh gas and oil field—with an investment of only $15.9-million in its own exploration and production work in the past five years, Entezam said.

So far, the "confirmed" reserves of Sarajeh are estimated at a minimum of 220-billion cu. ft. meters of natural gas and 400-million bbl. of light oil—with wildcat drilling not yet completed, Entezam said.

The "true importance" of this reserve is that it means NIOC will have no need to transport about 1-million tons annually of fuel oil from the south.

NIOC is considering formation of a new company—including private Iranian capital—to develop Sarajeh, build a refinery at Teheran, and distribute the products, Entezam disclosed.

Libya Chalks Up Another Discovery

Oasis Oil Co. has come up with an "exciting" new Libyan oil find about 50 mi. south of Esso's huge Zelten wells.

Oasis' B-1-59 wildcat flowed substantially over 100 bbl. an hour on preliminary test. The wildcat is in block 59, which runs south of Libya's three biggest discoveries—Esso's Zelten, Mobil's Amal, and Amoseas' Beda.

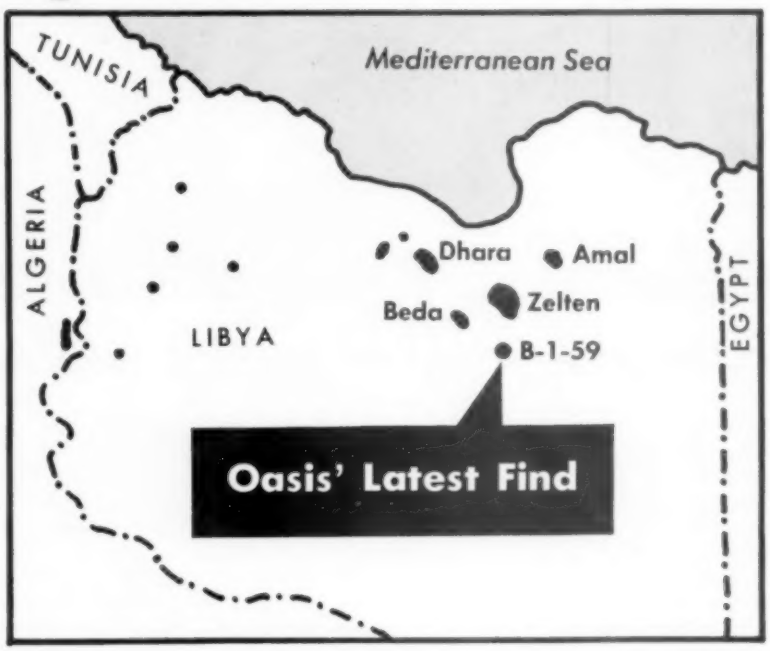
Oasis, which is operator in Libya for Ohio Oil, Amerada, and Continental, has been testing the B-1-59 for some time, after carrying it to 6,263 ft.

A company spokesman says that at the present time it looks as if "we have oil in several zones."

Oasis has now moved its rig off the wildcat, and is waiting the arrival of a service rig to finish testing.

The test is stirring up considerable interest in southern Sirte basin acreage because it indicates that the productive area of the basin extends farther to the south.

Oasis had previously abandoned two other tests on block 59, its A-1-59, which was located between the B-1-59 and the Zelten wells, and its C-1-59, which was just south of Amoseas' Beda acreage. C-2-59 is now being drilled below 2,391 ft.



When completed, the new find will become Oasis' tenth oil or gas producer in Libya.

The company's other wells have been completed for a total of more than 13,000 b/d of oil and 4.1-million cf/d of gas.

Oasis recently completed another well in western Libya on block 26, which borders Tunisia and Algeria. It was the company's first venture on that block. All of its other producers are in block 32 in central Libya.

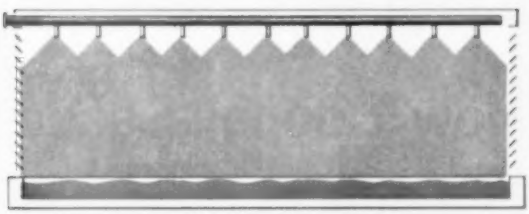
Oasis, with 11 rigs now running, is the most active of Libyan operators.

Should Process Plant Cooling Systems Use..

AIR ——

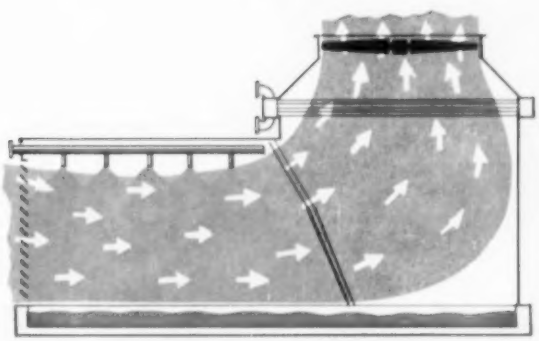
HUDSON SOLO-AIRE UNITS

WATER ——



HUDSON COOLING TOWERS

or a combination of AIR AND WATER ——



HUDSON COMBIN-AIRE UNITS

The answer is found only through comparisons of economics of air, water or a combination of the two for cooling each process stream, and incorporating the results in one integrated cooling system. Factors to be considered include desired effluent temperature of each process stream; summer and winter ambient dry and wet bulb temperatures; availability and quality of water; possibility of public water pollution; space available; and first cost, maintenance cost, and operating cost of equipment.

HUDSON is unique in supplying water cooling towers, Solo-aire units, and Combin-aire units to comprise integrated cooling systems utilizing air and water in economic ratios. With the collaboration of owners' engineers, HUDSON has designed integrated cooling systems for a wide range of process and climatic conditions. Hundreds of HUDSON installations are operating in the United States, Ireland, England, France, Spain, Norway, Saudi Arabia, Pakistan, the Philippines, Mexico, Chile, Peru, Venezuela, and Canada. HUDSON experience, available without obligation in integrating the cooling system with process design, will be most valuable to plant owners if utilized during planning stages.

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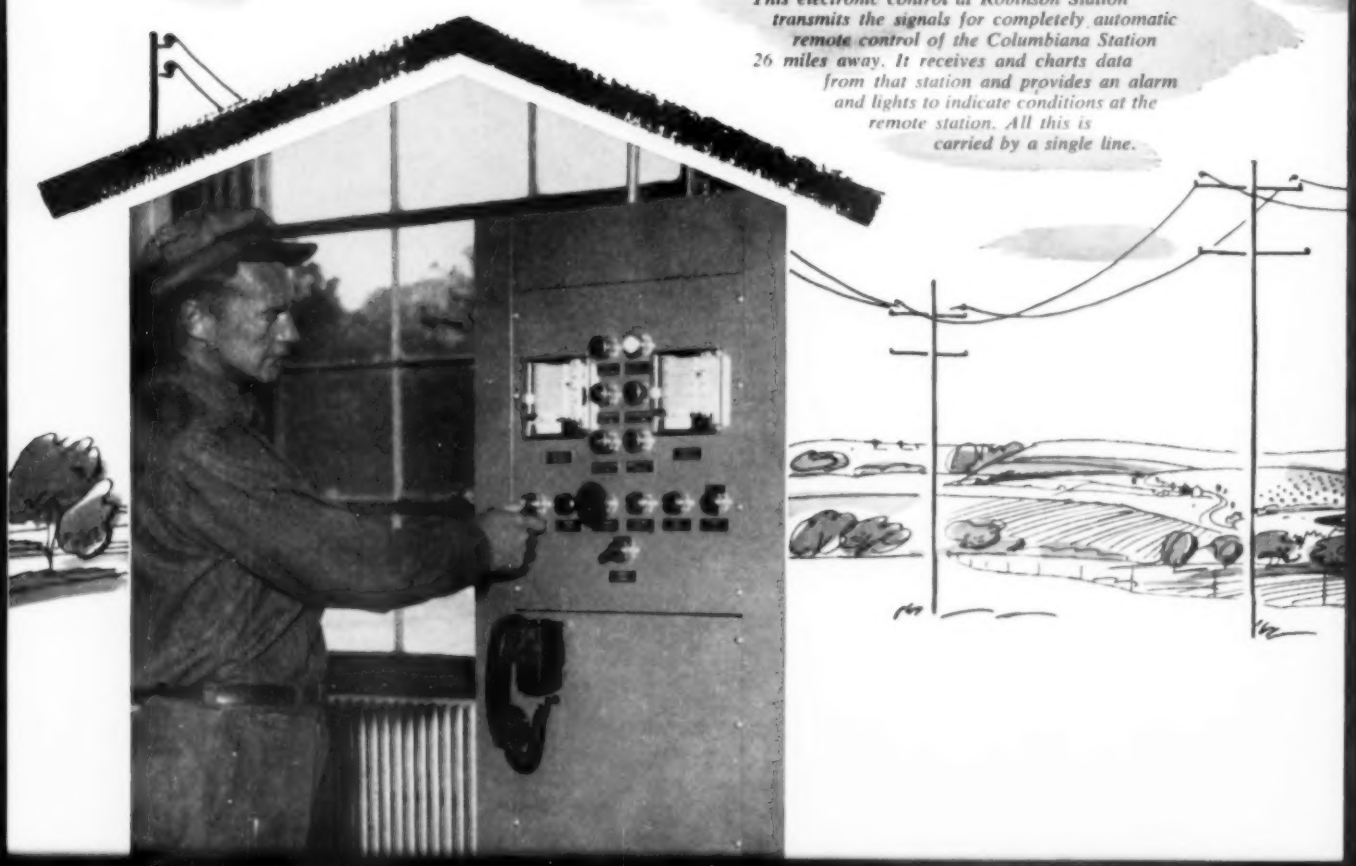
Frank Friedli, *Manager,*
En-Tronic Controls Division,
The Cooper-Bessemer Corporation,
explains...

How Cooper-Bessemer En-Tronic® Controls operate compressor station 26 miles away



This electronic control at Robinson Station transmits the signals for completely automatic remote control of the Columbiana Station 26 miles away. It receives and charts data from that station and provides an alarm and lights to indicate conditions at the remote station. All this is carried by a single line.

A part of the gas stored for East Ohio's customers is handled by their Columbiana Station. Here, they have recently replaced a 40-year-old engine-driven compressor with a Cooper-Bessemer GMXD 660 hp Packaged Compressor and En-Tronic Control. This entire installation operates automatically by push-button control from the Robinson Station 26 miles away.

A single telephone line and tone equipment provide a series of frequencies which control all operations... automatic sequencing, system alarms, data reporting, opening and closing of plug valves in the station piping, instantaneous shutting down of compressor in case of failure of power or communications and automatic starting when services are restored, and all other control and regulating functions. The compressor is self-lubricating.

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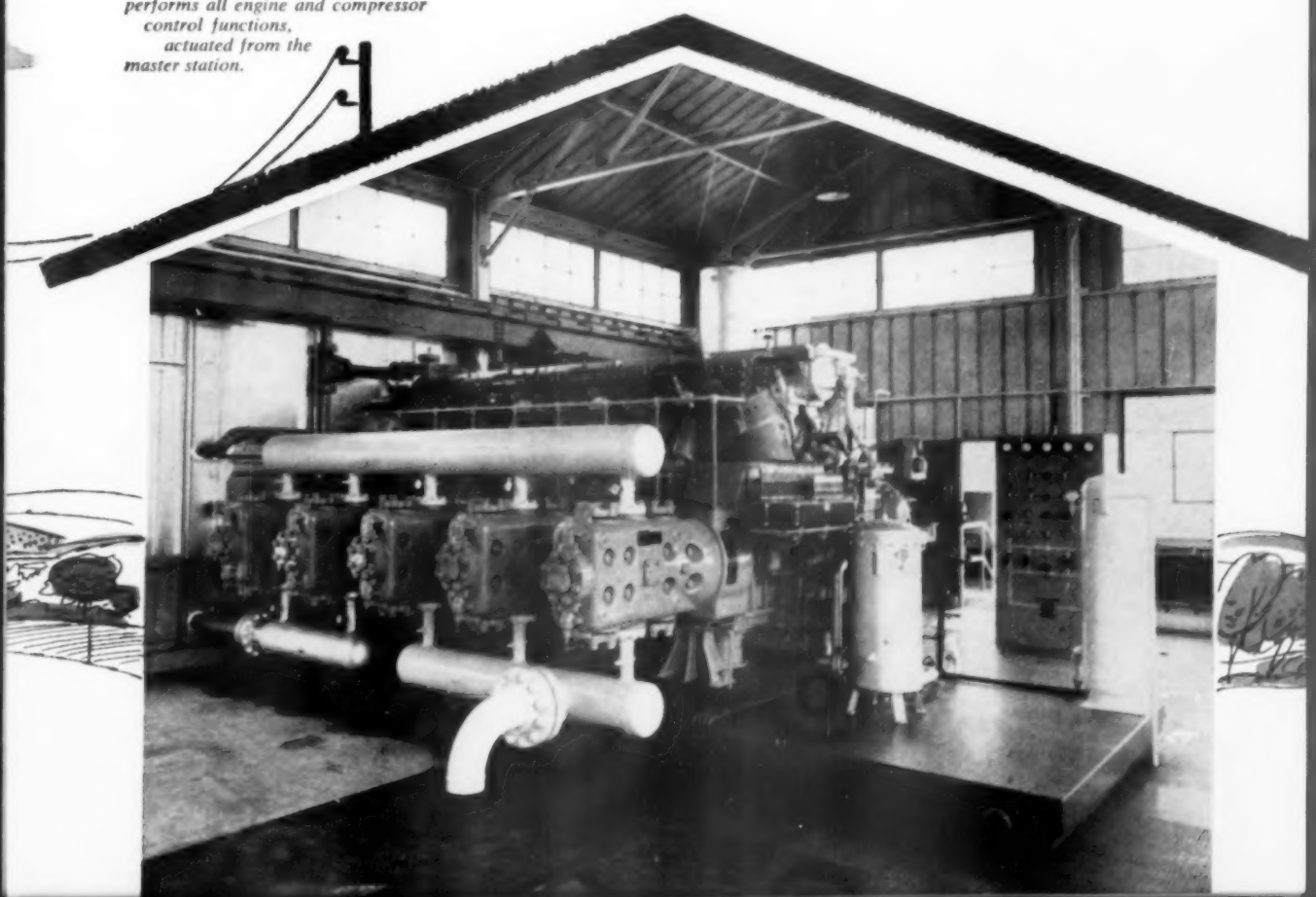
Foreground: Cooper-Bessemer GMXD-10 660 hp Packaged Compressor at Columbiana Station. Background: Cooper-Bessemer En-Tronic Control which performs all engine and compressor control functions, actuated from the master station.



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REFLECTIONS ON A CLASSIC — In every field there is one true leader whose products become classic — perennially setting a standard of quality by which others are judged. In the field of gasoline pumps that name is **Smith-Erie**

New Smith-Erie submersible pumps feature these design improvements

A ELECTRICAL PLUG-IN eliminates the necessity of disconnecting wires and conduit when removing the pump and motor for servicing. Job can be done in minutes without the services of plumber or electrician.

B ELECTRICAL JUNCTION BOX is now part of stationary pump head, replacing swivel-type separate junction box. Reduces the overall height of the discharge head a full 5" . . . permits easy installation closer to pit cover.

C ONLY TWO CAP SCREWS need be loosened to free the removable section from the discharge head. Two eye bolts make lifting removable section a snap. Again, no special tools or personnel are required for servicing.

D VERTICAL, CENTRIFUGAL PUMP is quiet and smooth running . . . gives long, dependable service. ½ hp models serve up to four dispensers; ½ hp models serve up to six dispensers; ¾ hp models serve up to eight dispensers.

Smith-Erie was the first to build a motor-driven meter pump . . . first to build remote pumping systems for service stations. In keeping with this tradition of leadership, Smith-Erie announces *six* improved submersible pump models satisfying the requirements of the largest and the smallest stations. All incorporate the new features described above — all are designed to give continuous service, economy of installation, operation and maintenance.

Smith-Erie offers a broad and completely integrated product line. Besides gasoline pumps, Smith-Erie produces petroleum meters in a complete range of sizes and pressures, airport and marine dispensers, hand pumps plus a wide range of accessories. Write direct for further facts on any of these products.

Twins are available in both L3 and Salesman-48 models

Smith-Erie twin pumps have the same outside dimensions as the single pumps. They occupy a minimum of island space while supplying more volume by serving two customers at the same time.

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Egypt Moves to Spur Bids Near Libya

In a new move to attract foreign oil companies, Egypt has released complete exploration data on its Western Desert adjoining Libya.

A reported 50 companies have now received from Cairo's Industry Ministry a comprehensive folder documenting exploration results of all former operators in the Egyptian desert. This follows an announcement late last year that the area is once again open for exploration (PW—Dec.4'59, p50).

A letter accompanying the "Summary Report" said it is intended to give interested oil companies a "precise idea" about the Western Desert's oil possibilities. It also said that, though past exploration did not lead to commercial oil discoveries, it did show "several indications of oil and gas, as well as favorable geological conditions for oil accumulations."

Meanwhile, the desert area—an extension of the Sahara—is being marked out in zones, as in Libya. Terms for international bidding are yet to be disclosed.

Zoning of the acreage is said to be virtually complete. According to some reports, it provides for blocks of 200 and 400 sq. km.

The zoning job was entrusted to the Industry Ministry's Fuel Dept., which recently was handed back some of the powers it lost to the General Petroleum Authority in 1958. Its report is expected to be ready this week. But since this falls in the Moslem fasting month of Ramadan, no further government action is expected until early April.

Even though terms have not been formalized, some companies are already reported in preliminary stages of negotiation.

The latest is Atlantic Refining Co., which, the Cairo press reports, has opened talks on Western Desert rights. The U.S. firm, however, says only that its Middle East representative was in Cairo for discussion of "various matters." It would not specify whether the Western Desert is among them. (Atlantic has continued to press its claims for rights in the Karatchok oil discovery, in the United Arab Republic's Syrian region—or for compensation for its interest in the permits taken over by the government.)

Altogether, 13 deep tests have been drilled in the northern part of the Western Desert, the government's exploration summary shows.

- **Nine of these were by Continental Oil's Sahara Petroleum** as operator for Continental, Ohio, Richfield, and Cities Service—the group that most recently held oil rights for a vast stretch of the Western Desert. The group pulled out in 1958 after four years of exploration.

- **One was drilled by Anglo-Egyptian Oilfields,** a Shell-British Petroleum affiliate in Egypt that is once again interested in Western Desert exploration.

- **Two were drilled by Standard Oil Co. of Egypt,** a Jersey Standard company that withdrew completely from Egypt in the postwar period, due to failure to acquire new oil rights. (It is not expected to make a bid for re-entry in the Western Desert.)

- **One was drilled by Caltex's South Mediterranean Oil Co.,** which also has withdrawn from Egypt.

The Summary Report includes full data on exploration results of all these companies—plus, apparently, some new correlation of past findings. The report was prepared by Dr. M. S. Amin, of the General Petroleum Authority's Exploration & Producing Dept.

Included with the text are: deep and shallow well logs; maps of mine clearance work; maps and charts of photogeological, surface geological, magnetometer, and gravity meter surveys; gravity and seismic profiles.

The most important shows in any of the 13 deep tests drilled were recorded in two of Sahara Petroleum's wildcats, the report says.

Libya's Oil Boom Lures Lebanese

BEIRUT—The lure of contracting jobs in Libya's booming oil activity is drawing Lebanese construction firms westward.

They had originally moved to the Persian Gulf area, and especially Kuwait, following the oil boom there in the '50s. Now they're going after new business in Libya as oil companies and associated industries shape up plans for pipelines, tank farms, refineries, and other installations.

Two new construction firms have already been set up in Tripoli, Libya, by two of the biggest mideastern contractors in the oil-rich Persian Gulf states—Emile Bustani and Fawzi el-Hoss, both of Beirut.

Bustani's Contracting & Trading Co. (CAT) already has offices in Libyan towns. It is now joining forces with a Libyan engineer, former Prime Minister Mustafa Ben Halim, in a new civil engineering and contracting firm —Libyan Engineering Co. (CAT has already become associated with several U.S. drilling contractors in Scacat Drilling Co.)

The other new firm in Tripoli is El-Hoss Engineering Co., set up by El-Hoss, which also has been working on forming a "national" Arab drilling company.

Direct flights from Beirut to Tripoli have just been started by Air Liban, Lebanese airline, which foresees a rush to Libyan oil installations by Lebanese traders, engineers, and skilled workers. It is also planning a direct flight from Beirut to Benghazi. Both routes eliminate an overnight stop and change of planes in Rome or Cairo.

How Oil Can Boost Living Standards

The steepest climb in Italy's per-capita income is being registered in the Ragusa oil area of Sicily—with Gulf Oil getting most credit for the improved standard of living.

Ragusa province's per-capita income has soared ever since Gulf Italia discovered oil there in 1952. And this despite the fact that the Ragusa oil field is small by world standards—about 23,000 b/d—though it is the biggest developed anywhere in Italy so far.

The jump since 1952 has been 128% in Ragusa as compared with an average per-capita income increase of 51.5% for Italy as a whole.

From 1957 to 1958, Ragusa's per-capita income rose 25%, while the national average increased only 6%.

In the same year, the average increase for the whole of Sicily—a semiautonomous region of Italy—was 4%.

What's New / AROUND THE WORLD

Venezuelan Output Dips

VENEZUELA—Relatively sharp oil output increases by Superior and Shell—and near-50% cuts by Sun, Sinclair, and Mercedes—were the principal features of January production in Venezuela.

The total, at 2,878,700 b/d, topped the previous month, but was 3.9% below January, 1959. Here are the government's official statistics (in 000 b/d):

Company	Jan. '60	Jan. '59	Dec. '59
Creole	1,086.7	1,217.1	1,103.0
Shell	821.9	894.3	748.2
Mene Grande	441.2	396.8	424.9
Mobil	125.7	120.7	123.6
Phillips	59.3	10.4	53.1
Texaco	55.8	51.9	58.8
Richmond	45.0	63.3	39.5
San Jacinto	43.3	21.8	46.1
Superior	39.3	29.7	15.7
Sun	38.6	30.7	76.8
Sinclair	34.9	58.1	65.1
Signal	29.0	20.3	27.1
Atlantic	25.4	25.3	26.4
Mercedes	17.0	32.8	33.3
Coro	7.7	—	—
Caracas	6.8	0.1	—
Talon	1.1	1.5	1.0
Colon (Now absorbed by Shell)	—	20.0	20.0
Totals	**2,878.7**	**2,994.8**	**2,862.6**

**For joint ventures, total group production is listed under operator's name.*

•

WEST GERMANY—West Germany agreed to boost its Soviet oil import quota for 1960, final year of a three-year trade pact, in return for Russian agreement to forgo coal shipments to coal-glutted Germany. The tentative quotas, as available in Bonn this week: 1½-million tons of crude; 350,000 tons of fuel oil; 160,000 tons of diesel; 100,000 tons of gasoline; and 15,000 tons miscellaneous products.

•

CZECHOSLOVAKIA—Oil output in 1959 increased only slightly to 2,500 b/d, but natural gas was up 14% to 125-million cf/d.

•

ITALY—Investments of the state-owned ENI group this year will be $170.8-million, the Minister of State Participations announced.

Of this, $47.7-million is for exploration and production; $10.9-million for natural gas transport; $47.0-million for oil product distribution; $25.6-million for petrochemical plants; and $39.6-million for nuclear and other activities.

•

ARGENTINA—Chile and Argentina are about to start negotiations on a newly proposed $50-million trans-Andean pipeline to supply gas to Chile's northern provinces from Argentina's northwestern Salta province.

Agreement to consider building the 300-mi. line was reached in Buenos Aires last week by the economy ministers of the two countries. Argentine officials say Salta fields could supply enough gas for Chile's northern copper and nitrate operations for years to come.

•

POLAND—Oil output reached 4,000 b/d last year—2.9% above the target. Natural gas production was up 10.5%, to 40.6-million cf/d, but still 8.1% short of the planned level.

•

VENEZUELA—Oil companies reinjected 30.6% of the 1.1-trillion cu. ft. of natural gas produced last year, the government reports. More is slated for reinjection, with five new plants currently under construction.

Last year's gas output was up 1% over 1958. Of the total, 54.5% was flared, 8.4% burned as plant fuel, 4.8% marketed, and 1.7% lost in treatment plants.

New Mideast Record

A new all-time high production rate was set in key Middle East producing states in January.

Production averaged 4,879,900 b/d, compared to the previous high of 4,632,300 b/d set last November. Saudi Arabia reached a new record. Kuwait, Iran, and Iraq were close to their record, and Qatar at its highest since November, 1958. The totals, in 000 b/d:

	Jan. '60	Jan. '59	Dec. '59
Kuwait	1,583.4	1,401.2	1,302.5
S. Arabia	1,221.2	994.0	1,210.0
Iran	993.0	829.0	933.0
Iraq	899.7	806.6	896.3
Qatar	182.6	167.0	153.5
Total	4,879.9	4,197.8	4,495.3

•

ALBANIA—After a 1.5% drop in 1958, oil output gained 17.8% last year to 11,520 b/d. This year's target calls for a 100% increase.

•

JAPAN—Kuwait's first exports of liquefied petroleum gas are slated for the Japanese-owned Bridgestone Tire Co. under an agreement with British Petroleum Co. The Japanese firm says nine 15,000-ton tanker cargoes are contemplated beginning late this year. It has not yet applied for the foreign exchange allocation it will need for the imports.

•

JAMAICA—Jamaica-Time Petroleum, Inc., plans to concentrate exploration on the north coast shelf and the east coast, now that it has taken up its option for oil rights to the entire island and its waters (PW—Oct. 30'59,p40). The Kansas independent's onshore and offshore gravity meter and seismic work will be done by Exploration Surveys, Inc., of Dallas.

•

VIETNAM—Standard-Vacuum and Shell may make a joint offer to build a 20,000 b/d refinery at Saigon to operate on crude from Indonesia, where each has production. Both companies already have proposed building separate plants in the Malay peninsula, to the south (PW—Dec.11'59, p54).

•

TRINIDAD—Panoil Co., of Dallas, has doubled production to 1,000 b/d by completion of five more shallow wells in the East San Francique field, discovered in December. Panoil is acting as technical director for the British-based Premier Consolidated Oilfields, in which it has just bought a 12½% stock interest. It is also earning an option to purchase further stock.

•

MOROCCO—A wildcat is slated near the Atlantic port of Agadir by the end of April by the Moroccan-French Soc. Cherifienne des Petroles. Tests are also planned farther south near Agadir, Morocco's Mining Dept. discloses.

The proper chemical correctly proportioned ***HERE***

...And used for minimum treating cost of low cuts, as indicated ***HERE***

...Results in a favorable sample ***HERE***

...And leads to accepted tanks every time, as shown ***HERE***

TF-60-1

another
TRETOLITE SERVICE
report

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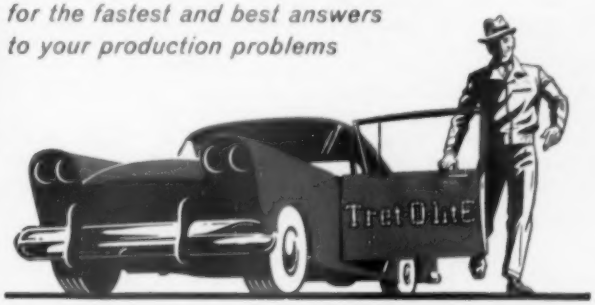

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DEPT/Pipelines, Tankers, Storage

Canada-U.S. Liquids Line Is Closer

There has been a marked revival of interest in the building of a gas liquids pipeline from Alberta to the U.S. Midwest, now that approval of the current big gas-export proposals appears likely.

The possibility that two liquids lines would be constructed—one to the Midwest and the other to the Pacific Northwest—was first announced by a group of Canadian companies two years ago (PW—Nov.28 '58,p9).

Last fall, plans for the western line were thrown in serious doubt by the estimated high costs of crossing the Rocky Mountains (PW—Oct.9'59, p87).

A line to the Midwest, however, appears more attractive than ever, now that approval of the gas exports seems assured (PW—Feb.26'60,p47).

One gas line would carry about 654-million cf/d to the U.S. West Coast (PW—Dec.18'59,p48). The other would move about 204-million cf/d of gas into the Midwest (PW—Jul.24'59,p34). Both would take gas from the Foothills region.

Canadian producers estimate that by 1962 about 96,000 b/d of liquids —at least 70,000 b/d of its surplus— would be produced along with the proposed 858-million cf/d of gas for export.

Of the 96,000 b/d, about 65,000 bbl. would be natural gasoline, 16,000 bbl. propane, and 15,000 bbl. butane.

Alberta's demand for liquids by 1962 isn't expected to be much over 20,000 b/d. And this forecast takes into account the use of liquids in miscible flood projects and as refinery feedstock, and a possible butadiene plant for Alberta's growing synthetic rubber market.

For the past two years, Alberta has been producing about 12,000 b/d of liquid hydrocarbons, according to the Canadian Petroleum Assn.

Canadian producers feel that the estimated surplus of 70,000 b/d or more of liquids could easily be absorbed by the U.S. market.

Foothills Pipe Lines, Ltd., which has been studying a liquids line since 1957, reportedly is ready to ask authority to build one as soon as the gas export plans are O.K.'d.

The report comes from Alberta producers, who are eager to secure an outlet for the liquids that would result from increased gas production.

The producers view Foothills as the logical company to build a byproducts line, since it has been exploring the project for more than two years. Several have indicated they would certainly use the line, if it's built.

Foothills will neither confirm nor deny a report that a request to the National Energy Board for authorization is imminent.

But a spokesman did tell PETROLEUM WEEK last week, "We are continuing studies which could lead to the construction of a byproducts gathering system within the province and a byproducts transmission line to the most logical market area."

He also said that Foothills believes that it would be more economical to ship the liquids out than to refine them and try to find a market for the finished products.

The route that Foothills is believed to be considering is from Berland River south to Watertown, then across Alberta, Saskatchewan, North Dakota, Minnesota, and Wisconsin to the Chicago area (map).

In a special study, Foothills concluded that the most profitable outlet for surplus liquids would be the Great Lakes refining area.

The company has picked the Chicago area, with its heavy refining capacity, as its prime target.

Total cost of a line following such a route is estimated at $185-million.

The Alberta gathering system would cost about $35-million, and the transmission section to the U.S. would run about $150-million.

Foothills is said to be considering a transmission line of 16-in. diameter all the way.

Initial capacity would be at least 50,000 b/d.

As many as 20 processing plants might be needed to extract the liquids from the export gas, which would come from Alberta's "wet gas fields."

This is the estimate of gas producers in the Foothills region.

The plants would be dotted along the Alberta section of the line and connected to it by laterals built by Foothills.

Whatever the outcome of the Foothills proposal, Canadian oil men and officials are already calling the years just ahead the "LPG era."

The phrase was coined by Alberta's Premier E. C. Manning, who says:

"When we talk about oil and gas, that still isn't the whole story. The liquid petroleum products, byproducts from the processing of our gas, undoubtedly will become a very big and prominent factor in the oil industry of this province in the future. They are going to present problems, but I suggest that another new era is opening up in this part of Canada in the days ahead, as the production and marketing of these products increase."

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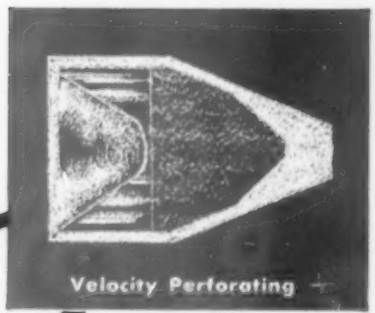

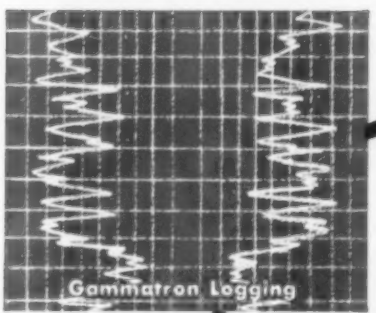

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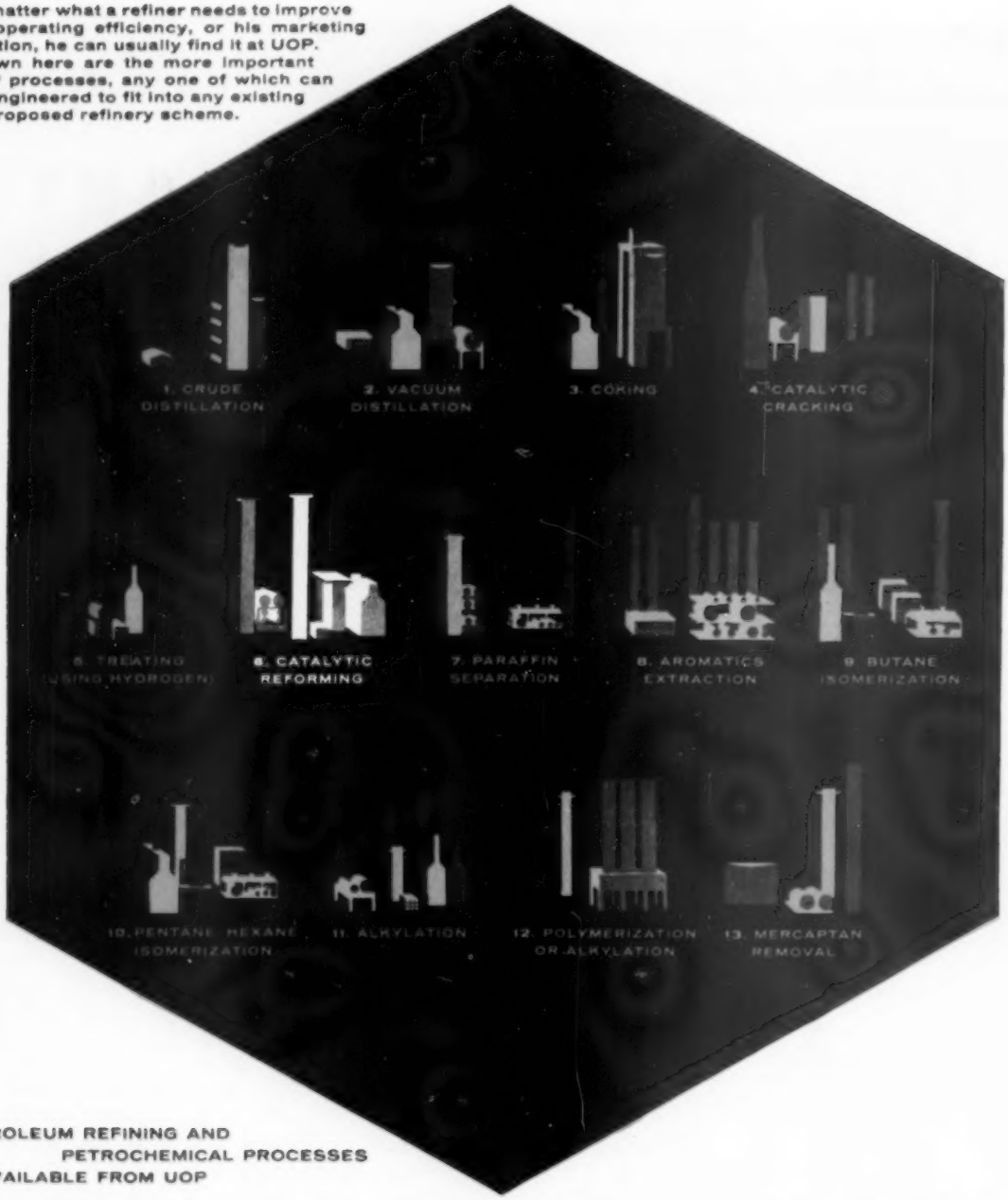
WESTERN Engineered WELL SERVICES

No matter what a refiner needs to improve his operating efficiency, or his marketing position, he can usually find it at UOP. Shown here are the more important UOP processes, any one of which can be engineered to fit into any existing or proposed refinery scheme.



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3. L.P. COKING permits adjustment of gasoline-to-heavy oils production ratio to meet market needs.

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5. UNIFINING™—a modern process that completely purifies petroleum distillates.

6. PLATFORMING® produces high octane gasolines, high purity aromatics.

7. MOLEX™—a new continuous separating process that removes lowest-grade hydrocarbons from gasoline.

8. UDEX®—the ideal process for separation of super-purity aromatics.

9. BUTAMER™—a new and practical process for producing isobutane.

10. PENEX®—a new process that converts light, normal paraffins to isoparaffins.

11. HF ALKYLATION—makes alkylate, top anti-rumble motor fuel. Sulfuric acid process also available.

12. CATALYTIC CONDENSATION—converts olefin fractions of refinery gases into high-quality gasoline and petrochemicals.

13. MEROX™—a new and inexpensive treating process to remove mercaptans from gasolines and light distillates.

PROCESSES NOT ILLUSTRATED:

REXFORMING®—the ideal process to insure your top octane position.

CATALYTIC DEHYDROGENATION—removes hydrogen from hydrocarbons to produce less-saturated hydrocarbons.

HYDEAL™—a new process for the hydrodealkylation of toluene or C_8 aromatics to produce benzene; may also be used for manufacturing phenol and naphthalene.

HYDRAR™—converts benzene to cyclohexane with excellent yields, achieves extreme high purity with Udex grade benzene.

OLEFIN EXTRACTION—efficiently separates olefins and diolefins from paraffins; prepares olefins for further conversion.

AROSORB™—removes heavier aromatics from synthetic and natural distillates, produces aromatic-free heavier distillates.

ALKAR™—produces ethylbenzene, cumene and other alkylated aromatics from Fluid Cat Cracker off-gas streams.

UNISOL®—an economical process for treating high mercaptan-containing gasolines.

* '62 COULD BE THE YEAR FOR YOU!

why motorists want higher gasoline quality

Refiners right now have adequate crude capacity, but intermediate and final product processing facilities are still inadequate. Demand for higher quality in gasolines is still growing—and could put refiners in short supply within two years.

Here then, lies opportunity. Manufacturing a larger ratio of higher quality products can raise a refinery operation to new levels of profit.

What will this involve? That depends on existing process facilities, sources of crude supply, actual and potential markets, price levels and other factors.

In all of these areas Universal can provide outstanding service. UOP research and service facilities, know-how, accumulated technical and market data and specialized experience are brought to bear on every facet of the problem—*and there is a UOP process to meet any refinery need.*

Start now to determine the best way to capitalize present and future marketing opportunities.

*THE CONSENSUS OF INFORMED OPINION is that 1962 will require a substantial increase in process capacity . . . NOW is the time to start your planning!

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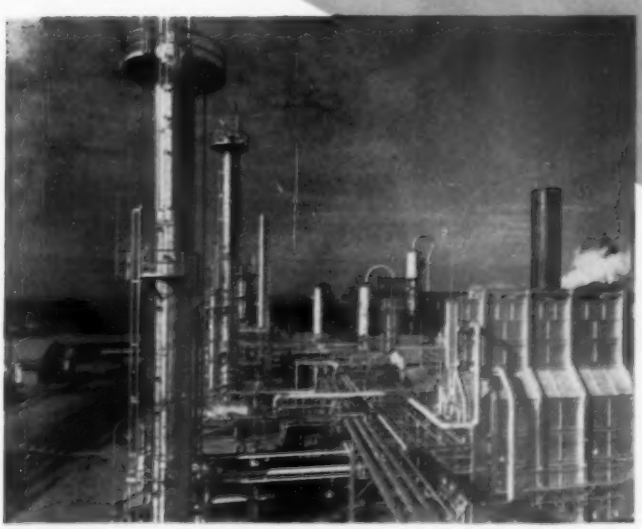
WHERE RESEARCH TODAY MEANS PROGRESS TOMORROW



PLATFORMING®

One of the most widely used processes in the refining industry, Platforming is the practical and economical method for upgrading gasolines. Originated and developed by UOP, this process is inexpensive to install, reliable and easy to operate. The platinum-containing catalyst is highly active and hence provides truly continuous operation. Costs of periodic shutdowns are considerably reduced and initial cost is lower due to the lack of necessity for expensive regeneration equipment. Platforming can handle the full boiling range gasolines without prefractionation, or naphtha cuts separated from them. It is also highly efficient for producing aromatics such as benzene, toluene and xylenes.

What's New / IN PIPELINES, TANKERS, STORAGE

Natural gas sales in Canada last year totaled 283.4-billion cu. ft. compared with 206.5-billion cu. ft. in 1958.

This represents an increase of nearly 37%.

Highest sales in 1959, as in 1958, were to industrial consumers, with domestic and commercial users next, in that order.

Total revenue from gas sales was $159.6-million, a 39% boost over 1958's $114.9-million.

•

Belle Fourche Pipeline Co. has sought authority from the Wyoming Public Service Commission to spend $2¾-million for a crude system in the northeast part of the state.

Main part of the system would be a 103-mi. line from Fiddler Creek field to lines at Lance Creek of Continental Pipe Line Co. and Marathon Pipe Line Co.

It would also include branches from an existing line in North Donkey Creek field to Rozet field and Miller Creek field.

•

Northern Alberta Pipe Lines, Ltd., a new company, plans a 110-mi. line from the Lac La Biche gas area to Edmonton.

Authority to spend $3-million for the 10¾-in. diameter line has been sought from the Alberta Dept. of Mines & Minerals.

The line would serve communities along its route.

Initial capacity would be 35-million cf/d, which could be raised to 45-million cf/d with addition of compressor horsepower.

•

El Paso Natural Gas Co. is seeking another annual gas rate boost—this one for $21.2-million.

El Paso told the Federal Power Commission that the increase is necessary because of higher costs, including those for gas.

The hike would affect 34 wholesale customers in California, Arizona, New Mexico, and Texas.

El Paso is now collecting on two rate increases totaling $41.8-million, both of which are subject to refund.

•

A $25-million order has been given A. O. Smith Corp., Milwaukee, for pipe for Michigan-Wisconsin Pipe Line Co.'s Upper Midwest gas line (PW—Jan.15'60,p30).

The order calls for more than 600 mi. of large-diameter pipe, which A. O. Smith estimates will require 140,000 tons of steel plate.

•

A bill to permit the Maritime Administration to tap the U.S. Treasury to meet mortgage payments by tanker owners on U.S.-backed loans has been introduced by Sen. Warren Magnuson (D., Wash.).

If the bill becomes law, it will permit Maritime to continue to make mortgage payments of delinquent U.S.-flag tanker owners under Title XI of the Merchant Marine Act of 1936.

The agency has already made payments totaling nearly $100-million on ten hard-hit tankers.

The bill is being supported by the Committee of American Tanker Owners, Inc., comprising 13 tanker operators.

•

Operating revenues of 73 major crude and products pipeline companies gained 6.7% in 1959 over 1958.

The Interstate Commerce Commission reports that total revenues of the companies last year was $711,721,733, compared with $666,920,007 in 1958.

The ICC report includes only companies having annual operating revenues of $500,000 or more.

•

The third annual southwestern Transportation Conference will be held at the University of Houston Mar. 14-15.

It will be sponsored by the university's transportation department and by the local chapter of Delta Nu Alpha (the national transportation fraternity), the Traffic Club of Houston, and the Houston Freight Carriers Assn.

Aluminum Pipe Buried Uncoated, Unwrapped

These lengths of aluminum pipe are part of a one-mile section of line installed by Columbia Gas System, Inc., in Louisiana, to test the corrosion-resistant properties of the aluminum alloy. The 6-in.-diameter gas pipe, light enough to be handled easily by a small crew (left), is lowered into a flooded, sea-level trench (right). The pipe was neither coated nor wrapped beforehand, and Aluminum Co. of America, its maker, believes that it will withstand even constant contact with sea water. Another claimed advantage is that the ends of each 8-ft. section are thicker than the walls, to allow for the reduction in strength caused by welding.

You save drilling dollars with a Baroid Mud Program

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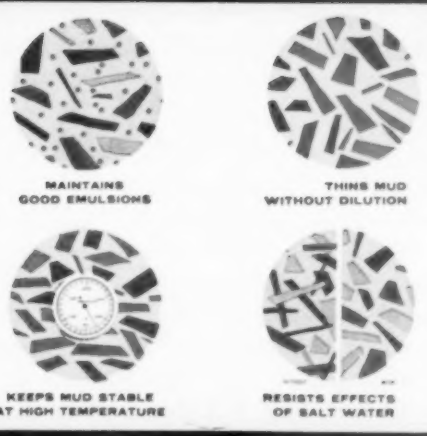
When the mud problem is to control drilling mud flow properties, CARBONOX is the answer. An organic mud thinner used for more than 12 years in all areas at all depths, CARBONOX is economical, simple to use and reliable in results.

In a typical case history where CARBONOX was part of an over-all Baroid mud program, CARBONOX proved to be the best thinner for controlling high temperature gelation and viscosity and aided in controlling filtration and filter cake thickness. This was on a 16,684 foot well in San Salvador Field, Hidalgo County, Texas. Bottom hole temperature was 356°F, mud weight was up to 19.1 lb/gal, and other adverse conditions included salt contamination and lost circulation. Yet CARBONOX helped keep the lime-treated oil emulsion mud in desired condition.

CARBONOX is a Baroid original, developed to control mud flow properties economically. Baroid develops complete mud programs to solve your specific drilling mud problems and save *your* drilling dollars.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6029

CHEVY'S BIG NEW BUILD IS LIKE

Here are some of the <u>many</u> ways in which Chevrolet's totally new build for '60 will work to build a bigger bank account for you. They show that a '60 Chevy means <u>profit</u>, through longer life, less maintenance, easier working, outsized cargoes and extra economy!

Major components of a 1960 Chevrolet truck last up to four times longer than ordinary truck parts – exhaustive testing has proved it. Likewise, the totally new cabs have proved 67% more resistant to twisting; and new frames for many models are as much as eleven times stronger in torsional rigidity. These are typical 1960 Chevrolet truck facts and figures – and they point up a new kind of tough truck build that helps you hang on to your dollars. And consider these '60 Chevy features from a profit-boosting standpoint:

MONEY IN THE BANK FOR YOU!

New torsion-bar independent front suspension saves maintenance, increases work output. Independently suspended front wheels step right over bumps; tough torsion bar springs soak up shocks. As much as 78% of all objectionable road shock is absorbed before it reaches truck body, sheet metal or driver! And the smooth ride saves time on rough roads; means more work per day.

New Chevrolet brakes are bigger; better at bringing a loaded truck to a safe, sure stop. And the extra-wide lining wears longer – helps reduce maintenance expense. You get the best in braking in every Chevy; in light-duty models, tough torque-action brakes are extra efficient.

New Chevy frames with new do-the-job brawn. Box-section rail design is stronger than ever; rail section modulus has been increased as much as 33%. And massive box-section front crossmember adds to truck stamina; helps keep you going years longer at least expense. New drop-frame construction lowers truck height; makes cab entry and truck loading easier.

Precision-balanced wheels. This small balancing weight indicates that all Chevrolet truck front wheels are balanced in assembly – an advantage no other truck offers. It's assurance that Chevy handles easily and safely; that tires will last longer without shimmy and shakes from wheel imbalance.

Chevy's big new full-width hood and low-profile fenders make underhood components more accessible; servicing is faster and easier. New frictionless coil springs in the rear effectively soak up road shocks before they reach the frame. You'll find, too, that 1960's savingest truck power is Chevrolet's: famous economy 6's and efficient short-stroke V8's for light-duty models . . . high-power, high-torque V8's and tough, dependable 6's for the bigger trucks. It'll profit you to see your Chevrolet dealer about Chevy's big new build, sometime soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS

CHEVROLET

BRIEF SPECIFICATIONS

Bucket capacity, 2 cu. yd.; bucket reach, 50¾ in. (@ 7 ft. dump height); over-all width (bucket), 93½ in.; wheelbase, 88 in.; speeds, forward (4), 0-24 MPH . . . reverse (4), 0-30 MPH; shipping weight, with diesel engine, 20,780 lb. – with gasoline engine, 20,440 lb.

HIGH LIFT, extra-long reach and safety! Note how bucket lift arms are completely in front of operator's area. This gives him new freedom of movement and greater all-round visibility. Other safety features: wide steps for safe and easy access from either side. Plus wide fenders that provide a handy engine checking platform as well as protection for operator from rocks and mud.

NOW! The No. 944

. . . the Cat wheel-type Traxcavator

. . . the first of a New Wheel Loader Line

DESIGNED FOR ACTION, controls provide instant, finger-tip shifting . . . a full range of work and travel speeds with reverse speeds 25% faster than forward speeds. Travel Range gives 2-wheel drive for roading . . . Work Range automatically puts power to all 4 wheels. Other action features: conveniently located machine and bucket controls . . . forward-reverse lever on the steering column . . . both bucket control levers with kick-out devices. Lift control releases at dumping height – tilt control positions bucket for digging.

DESIGNED FOR PRECISE CONTROL, the No. 944 brake system is outstanding. The left brake neutralizes the transmission as it stops the machine to provide superior loading action. The right brake leaves the transmission engaged for full control when creeping, etc.

VERSATILE IS THE WORD for the Cat No. 944 Traxcavator, which is offered with a full line of attachments and accessories to multiply its usefulness to you on any job. Available are forks, cab (shown here) and special buckets, including the exclusive side dump bucket.

Here's the first of a completely new line of equipment . . . the Cat No. 944 . . . rated at 2 cu. yd. capacity . . . that will soon include the No. 922 (1¼ cu. yd. bucket) and the No. 966 (2¾ cu. yd. bucket).

Watch for these new machines with the bold new design . . . they're ready to bring new standards to wheel loader operation. Take a look at the big new features that make this the easiest and fastest wheel loader to operate. Every feature is designed for *efficient work.* Plenty of horsepower . . . finger-tip steering . . . smooth, fast bucket action . . . outstanding operator comfort and safety.

Choose from two great new engines . . . the compact 4-cylinder Cat D330 Diesel Engine, turbocharged for maximum efficiency . . . or the 6-cylinder gasoline engine. Both are 105* HP units. Whatever your requirements, there's a No. 944 powered to meet your needs. Get the complete facts on the No. 944. See your Caterpillar Dealer the week of March 14. See for yourself how the new design pays off on your loader jobs!

Caterpillar Tractor Co., General Offices, Peoria, Ill., U. S. A.

*For comparative purposes, the maximum rating of the Caterpillar D330 Diesel Engine used in the No. 944 is 135 horsepower.

CATERPILLAR

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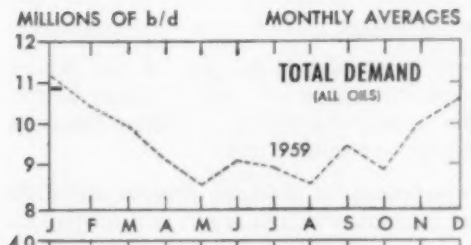
A GREAT NEW PRODUCT IN THE CATERPILLAR TRADITION

PETROLEUM WEEK'S

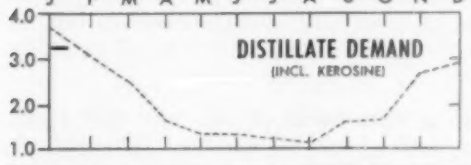
Fingertip Figures



Figures for period ended February 26, except as noted

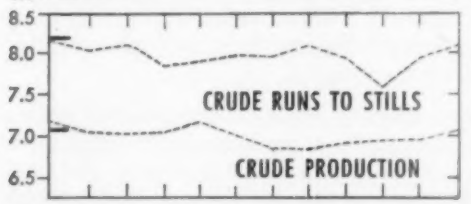
TOTAL DEMAND

Latest 4-week average	10.495
Year ago	10.502



DISTILLATE DEMAND

Latest 4-week average	2.717
Year ago	3.222

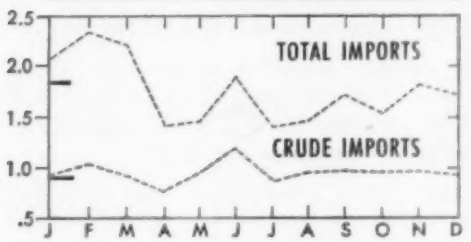


RUNS TO STILLS

Latest week	8.108
Previous week	8.081
Year ago	8.236

CRUDE PRODUCTION

Latest week	7.318
Previous week	7.312
Year ago	7.199

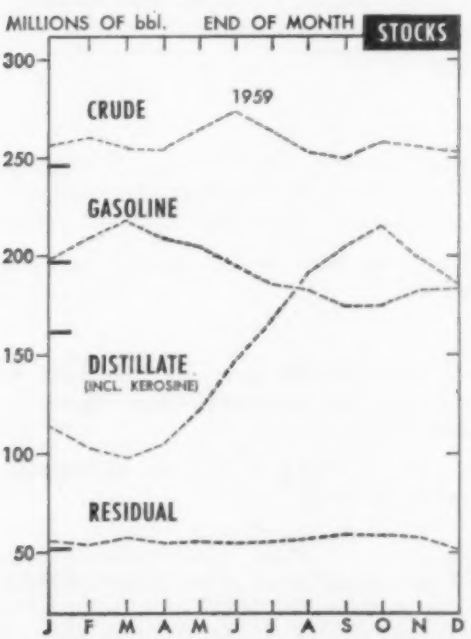


TOTAL IMPORTS

Latest week	1.897
Previous week	2.092
Year ago	2.157

CRUDE IMPORTS

Latest week	1.052
Previous week	1.102
Year ago	.977



CRUDE STOCKS

Week-ended 2-20	251.6
Previous week	248.9
Year ago	255.3

GASOLINE

Latest week	216.6
Previous week	212.9
Year ago	208.8

DISTILLATES

Latest week	130.7
Previous week	135.6
Year ago	103.2

RESIDUAL

Latest week	45.3
Previous week	46.4
Year ago	54.8

Despite announced cuts, refinery runs last week rose 27,000 b/d to 8.1-million b/d.

Refiners apparently ignored the surplus stocks of products and the continued seasonal decline in demand. Average demand in March can be expected to run more than 1-million b/d below the January level, barring unusually severe weather.

The boost in runs occurred mainly on the West and East Coasts. Increases of 29,000 b/d on the West Coast and 27,000 b/d on the East Coast more than canceled out declines in other parts of the country.

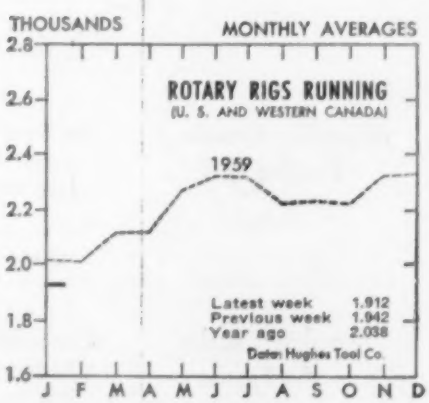
Refinery runs were off 42,000 b/d in Midwest, the only area with a significant reduction.

Higher-than-necessary runs in January and February have boosted distillates stocks beyond the point of correction this year. And now gasoline stocks are fast becoming critical.

Motor fuel stocks last week reached 215.6-million bbl., up 2.7-million bbl. for the week, and the highest since the record level of 218.7-million bbl. at the end of March, 1958.

Last week's yield of gasoline amounted to 50.4% of crude runs. The volume of gasoline produced—4,090,000 b/d—was close to the average of last summer.

Unless corrective measures are taken immediately, it is almost certain that the industry will be faced with surplus stocks of gasoline for the remainder of the year. And gasoline prices may play "follow the leader" with distillate prices, which sank to an eight-year low in February.



The Market Trend

Prices Still Bogged in Squelchy Ground

There is no shortage this week of anything but customers. The news continues mostly bad. Except for gasoline in the Mid-Continent, the erosion of prices shows few signs of stopping.

The announced cuts in refinery runs haven't yet dented the supply bulge. Some traders think that cutbacks coming now may actually be too late for a good gasoline season this spring. For oil, as the Chase Manhattan Bank puts it, "1960 is not going to be a normal year."

This week the East Coast experienced its sharpest drop in distillate prices since March of 1949. The cut amounted to 0.8¢ a gal. at most points. It failed to spur any heavy buying by barge and tank car resellers. At the Gulf, refiners were holding for 8¢ for No. 2 in cargoes, but it will probably take 7.5¢ to move a spot cargo.

Inland residual prices had their first break of the year this week. The $1.60 quotation for No. 6 fuel in Oklahoma for northern shipment got clipped to $1.50. Natural gas inroads into residual sales this winter have been severe in the Upper Midwest. Some suppliers there are even considering whether it is worthwhile to stock the product.

And East Coast sellers weren't deterred from cutting residual prices —even though their January rate of imports, if continued, would run them out of quotas by Apr. 15. Offerings to the military last week included such prices for No. 6 as: $2.27 delivered in trucks to Dover, N. J.; $2.18 in barges to Brooklyn; and $2.35 delivered in trucks to Lakehurst, N. J.

The slack state of the trading markets shows up in rates for barges and tankers. In the Midwest, nobody looks for much of an increase over the current rate of 0.2¢ per ton-mile for clean towing. Dirty rates mostly hold at 0.225¢, but one crude contract was closed lower.

And there is an almost panicky feeling among owners of U. S. flag supertankers. Recently launched 32,000-tonners sit idle while interest charges mount. Last week only two clean U. S.-flag fixtures were arranged, and both of them had to take foreign business in competition with foreign rates.

Is This the Real Bottom?

The 30,000-ton tanker Octavian was fixed this week for a year's consecutive voyage from Persian Gulf to Japan at Scale—57½%. This is probably a record low for consecutive voyages. It's equal to USMC—73%.

Anybody knowing of anything lower will earn fervent thanks from the tanker trade if he doesn't mention it.

Algerian Crude To the U.S.:

The first cargo of Hassi-Messaoud crude will hit the shores of the U. S. some time in April. A cargo was fixed for movement from Algeria in late March aboard the 15,000-ton Triton.

The cargo carries a rate of $1.83 a ton (—70%) if discharge is Philadelphia, and $2.34 if the oil moves to the Gulf.

Surplus Crude At Home:

The next break in U. S. crude prices could easily come from southern Louisiana. Discount oil is showing up there. One batch of 1,500 to 2,000 b/d from Johnson Bayou in Cameron Parish is available "off posted."

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of February 29

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- **Gasoline, 98 oct prem** ... **12-13.75↑**
- Gasoline, 92 oct reg ... 10.75-11.5
- Kerosine ... 9-10
- **Heating oil, No. 2** ... **8-9↓**
- Gas oil, 48-52 d.i. ... 8.25-9
- Fuel oil, bunker "C" ... $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 ... 14.75
- Gasoline, 93 oct research prem ... 11
- Gasoline, 87 oct research reg ... 10.125
- Gasoline, 79 oct research ... 9.375
- Gasoline, 70-72 oct motor method ... 9.25
- **Kerosine** ... **9.25↓**
- **Heating oil, No. 2** ... **8↓**
- **Gas oil, 48-52 d.i.** ... **8.25↓**
- Fuel oil, bunker "C" ... $2.00

New York Harbor, barges
- **Kerosine** ... **9.8↓-10.3↓**
- **Heating oil, No. 2** ... **8.8↓-9.3↓**
- Fuel oil, No. 6 ... $2.37-2.47

Okla.-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg** ... **11↑-11.5↑**
- **Kerosine** ... **9.75↓-10.125↓**
- Heating oil, No. 2 ... 8.5-9
- **Fuel oil, No. 6** ... **$1.50↓-1.70↓**

Chicago, bulk
- Gasoline, 91 oct reg ... 11-11.25
- **Heating oil, No. 2** ... **8.75↓-10.35↓**
- Fuel oil, No. 6 high sulfur ... 7.15

Los Angeles, rack
- Gasoline, 88 oct reg ... 11.65-12.65
- Diesel fuel, PS 200 ... 7.75-11.25
- Light fuel, PS 300 ... $2.80
- Heavy fuel, PS 400 ... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ... 4.5
- FOB Breckenridge, Tex. ... 4

LP-Gas
- Propane, Oklahoma (Group 3) ... 4.5-5
- Propane, Baton Rouge ... 5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t. ... 23
- 200 vis. neutral, 25 p.t. ... 27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. ... 25-26
- Neutral, solvent, 200-210 vis ... 21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. ... 25
- Neutral, solvent, 200 vis ... 21.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ... 15.875
- Gasoline, 79 oct research ... 9.75
- Kerosine ... 10.625
- Gas oil, 48 d.i. minimum ... 9.875

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9 ... $2.62-2.97
- North Dakota, 36.0-36.9 ... 2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ... 3.00
  - West Texas, N.M., inter., 36.0-36.9 ... 2.93
  - West Texas, N.M., sour, 32.0-32.9 ... 2.71
  - East Texas, flat ... 3.05-3.25
  - Mirando, 28.0-28.9 ... 3.31
- Illinois Basin, flat ... 3.00
- Pennsylvania Grade, Bradford dist., flat ... 4.55
- California, Signal Hill, 21.0-21.9 ... 2.32†
- North Louisiana-Arkansas, 36.0-36.9 ... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) ... $2.38
- Leduc-Woodbend (Alta.) ... 2.53
- Redwater (Alta.) ... 2.42
- Steelman A (Sask.) ... 2.435
- Virden (Man.) ... 2.30

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido ... $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz ... 3.10
- Oficina, 35.0-35.9, Puerto la Cruz ... 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay ... 2.30
- Bachaquero, flat, Las Piedras ... 1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo ... 2.83
- Lagunillas Heavy, flat, Las Piedras ... 2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura ... $1.90
- Safaniya, 27.0-27.9, Ras Tanura ... 1.50
- Iran, 34.0-34.9, Bandar Mashur ... 1.86
- Iran, 34.0-34.9, Abadan ... 1.81
- Iraq, 35.0-35.9, Fao ... 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi ... 1.67
- Qatar, 41.0-41.9, Umm Said ... 2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud ... 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud ... 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon ... $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias ... 2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat ... $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U. S. Gulf-New York, clean (USMC—23%) $2.19↓
- U. S. Gulf-New York, dirty ... (USMC—21¼%) $2.24
- NWI-USNH, dirty ... (USMC—55%) $1.24
- NWI-UK/Cont., dirty ... (Scale—51¼%) 16/9*
- Persian Gulf-UK/Cont., dirty ... (Scale—52½%) 29/6*
- Persian Gulf-USNH, dirty ... (USMC—60%) $5.08

**Sterling*

DEPT/Marketing

Premium 'Gas' Slumps in the Northwest

Marketers in Washington and Oregon report a steady decline in the ratio of premium gasoline sales to total gasoline sales.

The decline has taken on quite surprising proportions, and seems unique to the area. Here's what the marketers say:

- Mobil Oil Co.'s district manager at Seattle says that his company's ratio of premium sales to total sales is about 35%, a drop from 50% in 18 months.
- Union Oil Co.'s district manager at Seattle reports that his company's sales in the state of Washington show a premium ratio of 44.7%, compared to 52.1% a year ago. In Portland, Ore., Union reports a ratio of 40.9%, down from 43.1% a year ago, and 49.3% in 1948.
- The Carter Division of Humble Oil & Refining Co. also reports a downtrend. A division sales manager in Seattle estimates that the company's premium ratio is down to 35% after peaking at 50% in February, 1957. The ratio in Portland is higher: 40%.
- Standard Oil Co. of California reports a 5% decline from a year ago, with premium sales now running about 49% of total sales in western Washington.
- Another national marketer reports a decline to 35.3%, from 43.6% in 1955.
- A division manager for still another national company records a conservative 3%-4% decline in premium sales, but says that the trend has been evident only in the last six months.

What's the cause of this relative drop in premium sales in the Northwest? Some marketers suggest that the compact car—with its appetite for regular gasoline—is a factor.

This opinion is voiced by Mobil and at least one other national marketer. But the compact car is not unique to the Northwest, one company spokesman points out, and premium ratios throughout the nation have trailed off not more than 1% or 2%, he says.

Other marketers pin the blame for dwindling premium ratios on economy advertising—not only by auto manufacturers, but by oil companies as well.

This promotion of regular gasoline has touched some of Detroit's heaviest cars—the Oldsmobile, for example—and, says a spokesman for Time Oil Co., is responsible for the general tendency on the part of motorists at least to try regular gasoline in their high-compression autos. Oil companies have reinforced the economy trend with their emphasis on regular.

But automakers are basing their claims on the octane rating of East Coast gasoline, which is higher than the regular sold in the Northwest, he says. New York service stations, typical of the East, sell a regular that averages 93½-octane, according to Ethyl Corp. Most of the West Coast service stations offer a regular gasoline that averages around 91-octane.

An oft-repeated suggestion by marketers both in New York main offices and in the Northwest is that regular gasoline there has gained considerably in octane quality over the past year.

A check of Ethyl Corp. ratings of regular gasoline in Northwest markets bears this out. In Seattle, for example, regular gasoline has gained two octane numbers over the past year. This compares to a climb of 1.3 octane numbers for the nation as a whole.

This push upward in the octane ratings of regular gasoline sold in the Northwest may account for some of the fall-off in premium ratios, especially when this improvement in quality is combined with spirited promotion of the economy of regular gasoline.

But the answer cannot be found wholly in quality improvement. After all, there have been gains of two octane numbers in regular gasoline over the past year in such markets as Casper, Wyo., and Minneapolis, Minn., even a 2.8-octane increase in Salt Lake City. But marketers in these cities report no comparable fall-off in premium ratios.

Most suppliers in these markets report a decline in premium ratios which seems no more than to parallel the national decline—1% or 2%, possibly 3%.

Several national marketers point to the 5¢ differential between premium and regular prices in Northwest service stations.

"This," a spokesman for one company says, "is unique to the Northwest," and it may furnish the key to the decline in premium ratios "where all other suggestions provide just part of the answer."

Depressed gasoline prices in Seattle have created a gap between regular and premium prices that has lasted for more than a year. Only in the summer months did regular prices firm temporarily in Seattle, according to Platt's Oilgram Price Service, a McGraw-Hill publication.

Imperial disappointed as . . .

Mortgage Plan Sells Little Oil

Imperial Oil Ltd. has had little success so far with its plan to boost heating-oil sales by loaning money to new-home buyers.

Under the plan, the Canadian marketer offers to loan prospective new-home buyers up to $1,200 for second mortgages on their homes, providing they promise to buy Imperial's fuel oil during the seven-year repayment period (PW—Oct.2'59,p51).

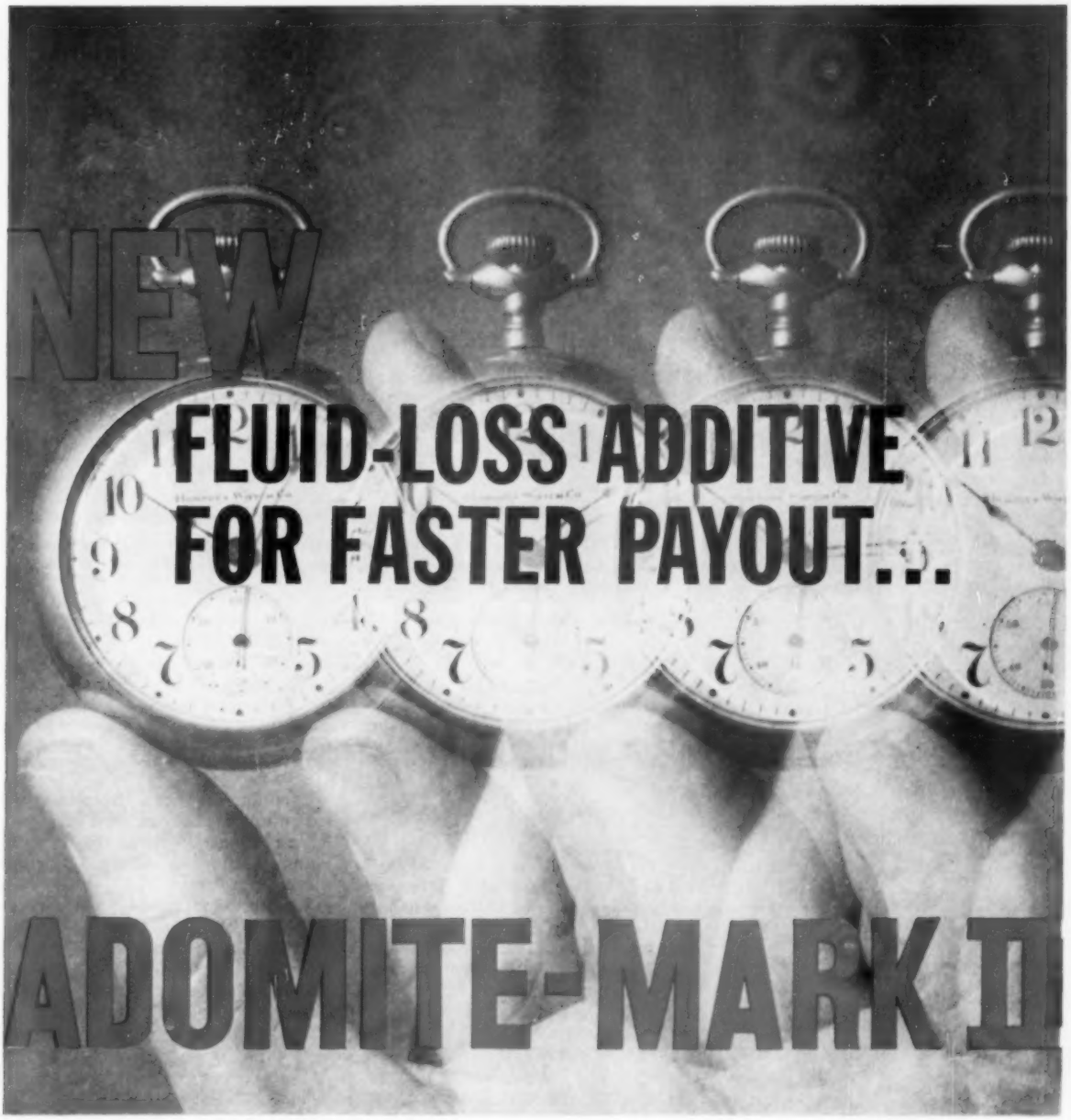
"The number of second mortgages we have processed so far is still infinitesimal—less than 200," says B. C. Blizzard, coordinator of domestic heating sales for Imperial.

What tends to make this number seem "infinitesimal" is that Imperial inaugurated the plan in Quebec in April—more than ten months ago—and later extended it to British Columbia (PW—Oct.2'59,p51). Since then, new-home buyers in Ontario and Manitoba have been cut into the deal.

"We are not too discouraged, however," says Imperial, "as it has always taken considerable time for new programs to filter down to our field people."

Imperial experienced a similarly slow start with its heating-equipment financing program (the company offers to finance the purchase of new equipment, providing its fuel oil is used to keep it working).

Imperial started it in 1958, but the results were "very meager" that year. Then the program caught on: Imperial financed 3,500 installations in 1959, and "we'll probably finance 6,000 in 1960," says Blizzard. "I think we will see the same pattern with the second-mortgage program."



Now—from the makers of ADOMITE comes the last word in fluid-loss additives—new ADOMITE-MARK II. Regardless of the kind of fracturing oil medium you use, new ADOMITE-MARK II will give the fullest possible fluid-loss control. Result? Larger fractures and faster payouts every time!

You, along with many other producers, may want to continue to standardize on ADOMITE, proven in over 20,000 fracturing treatments to be an efficient fluid-loss control additive for a wide range of crudes.

Where unusual conditions exist and optimum fluid-loss control is imperative, ask for ADOMITE-MARK II . . . now available from your service company.

For more detailed information contact your nearest ADOMITE man:

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Joe M. Foster, Wichita Falls, Texas, Phone 723-8181
H. L. Thomason, Casper, Wyoming, Phone 3-3721
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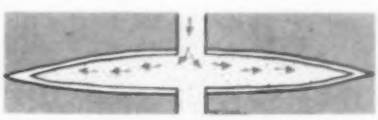
ADOMITE®  *. . . fluid-loss additives*

Experimental Station Tests New Ideas

The Esso Standard Division of Humble Oil & Refining Co. has packed almost every unusual service imaginable into a new station in Louisiana.

Here's a list of what a motorist on the Airline Highway at Gramercy, La., 40 mi. from New Orleans, will find:

- A baby nursery;
- A children's playground;
- An air-conditioned "lunch-and-lounge" salon;
- Air-conditioned salesroom and restrooms;
- A patio for outdoor dining;
- A whole battery of vending machines, which serve a menu of hot soups, toasted sandwiches, canned foods, ice cream, orange and other fruit juices, soft drinks, and coffee (black or regular).

Lighted outdoor signs advertise the station as far away as 70 mi.—in effect, warning motorists to save their appetites for the time when they can eat and fuel up all in one stop.

"We anticipate that the station will attract motorists who do not like to delay their driving by stopping at restaurants," says C. C. Shaw, dealer manager for Esso's Louisiana sales division.

The new station is called "Moto-Mat." But the service is not entirely automatic. Three of the station's 18 employees are hostesses, who'll make hotel reservations for you while they're keeping an eye on the children.

Nor do their talents end there. The hostesses will also provide travel information, tour reservations, road maps, and other aids, and even give assistance in making telephone calls.

Two maids and two porters are at your service in the lounge, playground, nursery, driveways, restrooms, and other facilities, making certain that everything is as clean as a service station should be.

A team of ten station attendants, and the seven other employees, are managed by a former all-star quarterback. Don Brignac, former Tulane University football player heads the "Moto-Mat" payroll, which runs to $100,000 a year.

What's the purpose of such an elaborate station? Esso explains that it is trying to develop new sales-promotion and merchandising programs that can be passed along to dealers.

The "Moto-Mat" station is company-owned and -operated, and all of the personnel are Esso employees—unlike most Esso stations, which are run by independent dealers.

ESSO'S 'MOTO-MAT,' a sort of test tube in retail marketing, offers highway motorists everything from maids and porters to hot soups, fruit juices, and toasted sandwiches.

Thus, the "Moto-Mat" is a sort of marketing test tube, and isn't expected to show a profit at the end of the year.

Through the station, Esso is able to try out services that the ordinary dealer would not be able to experiment with. If Esso proves that a particular service can boost sales, the dealer may be more inclined to introduce the service at his own station, Esso reasons.

Even the hostesses may prove so successful, says Esso, that some dealers may be tempted to try them at their own stations. But air conditioning is probably more universally applicable, the company feels.

An Esso spokesman says that there are some profitable dealers who may be able to employ at least one hostess.

And certain independent dealers, especially in the South, says Esso, may find that an air-conditioned lounge brings in more volume than a lube bay (which takes up just as much room. The "Moto-Mat" station does not have any lube bays).

Esso itself may decide to build air-conditioned stations along high-volume highway outlets.

Esso has also been experimenting with service innovations at its so-called "Manager Plan" stations.

These are commission-type operations, which Esso began introducing about a year ago.

The dealer-manager at these stations receives a commission for the products he sells on a consignment basis for Esso. He is free to purchase TBA items from other suppliers.

Esso, however, supervises the operation of the stations, using them mainly to test the profitability of new marketing ideas for its 25,000 dealers.

Esso may open the books of some of its Manager Plan stations to let nearby lessee dealers see for themselves how profitable certain services can be.

Manager stations, despite their essential purpose as test stations, have come under the scrutiny of Rep. James Roosevelt's investigation of oil marketing.

Criticism has centered on the manager stations in Virginia, which, Roosevelt claims have been converted from lessee operation, thus limiting the independence and profit of the dealer who runs the station.

Esso has answered this criticism with these arguments:

- The number of manager stations is small—slightly more than 100, or less than ½ of 1% of the company's total outlets. (Rep. Roosevelt, however, told PETROLEUM WEEK that he believes the number of these stations runs "into the high hundreds.")
- The stations are an efficient way to introduce new dealers to the service station business and, at the same time, give Esso an opportunity to test some new merchandising techniques.
- The commissions received by a Manager Plan dealer are entirely different from lessee-dealer margins, and cannot be compared.
- If the present manager commissions are lower than commission station margins of a few years ago, it is in part because of costs met by the company at the Manager Plan stations.

What's New
IN MARKETING

Crystal Balls Brighten

Three predictions were made recently that anticipate surprising growth in octane requirements, gasoline consumed per vehicle, and miles driven per person:

Octane requirements will climb to 103.5 by 1966, says John R. Sabina, planning manager of Du Pont's Petroleum Chemical Division. He bases his prediction on the "trends in automobile engine design and resultant fuel demands."

Gasoline consumed per motor vehicle will increase 10% between 1956 and 1976, says the Bureau of Public Roads. It bases its prediction on such factors as the anticipated increase in leisure time and wealth, interstate highway development, and the growth of suburban communities.

The average American will rack up 4,200 individual miles traveled in passenger cars in 1970, compared to 2,400-mi. per person in 1950, the Automobile Manufacturers Assn. predicts. It says the chief reason for the increase is a drop in the average number of passengers per car.

•

Do motorists prefer red, white, and blue stations? Standard Oil Co. of California is trying to find out.

It's had 40 cream-and-red dealer stations painted red, white, and blue, and shifted 60 red, white, and blue company-operated stations to dealer operation. The test ends late this year.

•

A Dodge truck advertisement, published in Petroleum Week last fall, has been named "best in the show" at the annual Western Exhibition of Advertising & Editorial Art, in Los Angeles.

As a result, the Dillon Lauritzen Memorial Award has been presented to Ross Roy, Inc., Dodge's advertising agency, and Charles Wysocki, Jr., who painted the illustration.

•

Shipments of motor oil cans this year are expected to exceed 1959's volume of 292,336 tons, which was 7.5% over 1958, according to the Can Manufacturers Institute.

The demand for the 5-quart oil can will decline, because of the increased number of small cars, the Institute stated.

Ad-Rating Opportunities Open

Advertisers to the oil industry get several opportunities per year — in PETROLEUM WEEK — to find out how their messages are being read.

The opportunities for advertisers, in 1960, are in the issues of:

January 22	July 8
March 4	August 19
April 8	October 21
June 17	December 2

Rating of advertisements is conducted by Mills Shepard, Inc., an independent research organization.

PETROLEUM WEEK is one of 15 business publications, and three consumer magazines, using Mills Shepard services.

Rating information for all publications is gathered by Shepard interviewers throughout the country. All survey standards and techniques are set at Shepard headquarters in Bronxville, N. Y.

Shepard surveys are based on face-to-face interviews with representative subscribers.

Shepard selects for each survey 100 PETROLEUM WEEK subscribers. This selection, made from among its subscribers in all segments of the oil industry, at all levels of job responsibility, is designed to represent a cross-section of PW's total U. S. readership.

Interviewing begins after the reader has had ample time to read all that he intends to read – and to give those who've been away on business or vacation a chance to catch up on their reading.

The reader is asked if he remembers having seen individual advertisements and whether he read the individual item partially or thoroughly.

The interviewer takes the reader through the book, page-by-page, establishing the readership – or lack of it – for all advertisements ⅓ of a page or larger.

The result is three "scores" for each item — indicating how each performed in registering on the mind of the reader.

In some cases, further scoring is done to determine the attention given to artwork, or the readership of picture captions.

Scores are supplemented by information as to where each interview was conducted and about the industry segment and job function of those readers who contributed to the survey.

Advertising scores can be used to determine the attention-getting power of individual ads, to determine their performance against competitive ads, and to serve as a cumulative index of ad perfomance over a long period.

Generally, one score for one advertisement is not conclusive as to the value of a company's message, or its method of presenting that message. Consistently high scores, or consistently low scores, compared with competitors' advertising scores, provide a much sounder basis for evaluation.

PETROLEUM WEEK is the only publication in its field offering wide-open examination of regular editorial research.

Editorial scores provide the publisher – and PW advertiser – with a continuing check on PW's editorial quality.

Cumulative scores, moreover, enable the advertiser to see for himself PETROLEUM WEEK's "through-the-book" reader traffic.

In addition to scores, PW advertisers get the benefit of continuing experimental research.

Mills Shepard has already provided, at PETROLEUM WEEK request, breakdowns of readership of individual advertisements by job function, and readership of editorial items by industry segment.

Shepard interviewers have established the number of "pass-along" readers of PW, the average time spent reading the publication, the place where it's normally read, the amount to which PW has taken the place of other publications in its field, and other aspects of publication performance of interest to advertisers, as well as "verbatim" comments from many PW readers.

Mills Shepard, the man who founded the research firm, has developed his professional standards — and standing — in the course of a 30-year career in research.

He started, in 1931, with Daniel A. Starch & Staff, after getting an M.B.A. at Harvard and an A.B. at Colgate.

After 12 years with Starch, in which time he arose to Vice-President and General Manager, Shepard became Director of Marketing Research for Dun & Bradstreet, Inc., then Director of Research for McCall Corp.

He founded Mills Shepard, Inc. in 1952.

Petroleum Week · Oil's Most Readable Magazine
Largest paid circulation in the industry · A McGraw-Hill Publication

RIDGID No. 2-S
Spiral Reamer
⅛" to 2" Capacity... Self-Feeding for Least Effort

For Smooth, Easy Reaming it has to be
RIDGID

No. 2
⅛" to 2" Capacity

No. 3
⅜" to 3" Capacity

RIDGID
"LonGrip"
Reamers

No Thinned or Flared Walls

Take your choice–Spiral or "LonGrip"–you can't beat these RIDGID Reamers. For hand reaming, you probably prefer the effortless self-feeding Spiral; for power use, the "LonGrip" five-fluted reamers. Heat-treated cutting edges offer extra-long service . . . will not dig in and thin or flare walls. All RIDGID Ratchet Reamers come equipped with handle.

Your Supply House has them. For smoother, faster reaming, order yours today.

RIDGID
The Ridge Tool Company • Elyria, Ohio, U.S.A.

Special Report: EXPLORATION

April 22nd Petroleum Week

Exploration people are the most optimistic in several years

After several years of below-normal exploratory activity domestically, there are good indications on the horizon that 1960 will be a turning point.

- Several contract geophysical concerns report that they are putting idle U.S. crews back in the field.
- A few of the oil companies have increased their exploratory budgets for 1960, following the stringent cost-cutting years of 1958 and 1959.
- There will be a general leveling off of exploratory work overseas, but relatively few companies anticipate drastic cut-backs over-all.
- Managements of some companies are becoming apprehensive over the lack of new oil being found domestically; they say they are going to be looking harder for new oil finding tools.
- Basic research—which could have anything as its objective—is going to be emphasized more during 1960. But applied research isn't being overlooked either.

The real breakthrough sought for an effective new oil finding method could come this year—through refinement and better understanding of an existing tool, or through the development of some new concept.

Some straws in the wind: Continued miniaturization of tools; increased use of electronic computers; logging devices which provide closer coordination between geophysicist, geologist and reservoir engineer.

All these and more will be investigated and evaluated in PETROLEUM WEEK's 1960 Exploration Report, out April 22nd.

CLOSING DATE: APRIL 1st

The Special Report on Exploration in the April 22nd Petroleum Week will provoke interest in and produce action for advertisements in that issue featuring products and services with application in exploratory activities.

PETROLEUM WEEK

Oil's Most Readable Magazine

A McGraw-Hill Publication • 330 West 42nd Street, New York 36, N.Y.

Largest paid circulation in the industry

DEPT/Personals

F. C. ALDRICH has been named manager of Ohio Oil Co.'s newly established international oil sales department, offices in London. He was formerly manager of Ohio's Sidney (Neb.) production district. Ohio Oil, which has crude reserves in Libya, will use its new department to implement its activities in European petroleum markets. International oil sales will be under the supply and transportation organization headed by **J. R. Donnell**, vice-president.

W. S. Nordburg, Jr. F. C. Aldrich

WILLIAM S. NORDBURG, JR., has been named director of overseas projects for Amoco Chemicals Corp., Chicago. He will be responsible for evaluating opportunities overseas for various chemical activities and for developing commercial ventures, and will report directly to the president. For the past two years, Nordburg has been director of licensing in the research and development department of Standard Oil Co. (Ind.), Amoco's parent. Before that, he was assistant to the manager of Standard's patent and licensing department.

CARL T. SWAN becomes assistant to the vice-president in charge of the refining department of Texaco Inc., with headquarters in New York. Swan was formerly assistant superintendent of Texaco's Lockport (Ill.) refinery. **David K. Beavon**, formerly assistant supervisor, process, in the new process and production division in New York, succeeds Swan at Lockport.

JAMES J. McMAHON has joined Northern Natural Gas Co., in Omaha, Neb., as senior reserves engineer. McMahon, who has been with Shell Oil Co. for more than ten years, represented that company for four years while he was working on the Seeligson unitization project, at Corpus Christi. At Northern, he will be involved with gas reserves and availability.

W. F. EITING, JR., is the new eastern area manager for the Carter Division of Humble Oil & Refining Co., with headquarters in Mattoon, Ill. Eiting has been assistant production manager at Carter's headquarters in Tulsa since 1955. In his new position, he succeeds **R. P. Ryan**, who was recently appointed general counsel and a member of the Carter's board of management. **R. E. Hammond** replaces Eiting in Tulsa as assistant production manager. Hammond has been production manager for the Humble Division's Tri-State and Michigan operations, at Mattoon, since 1955.

C. H. COUGHLIN has been elected vice-president of marketing for American Oil Co., New York, succeeding **T. A. Aldridge** who has been named director of marketing development for Societe Civile Amoco, in Paris. Amoco is a subsidiary of Standard Oil Co. (Ind.), and Civile Amoco is Indiana Standard's representative for foreign market planning. Coughlin has been Amoco's general manager of sales since 1958, and a director since 1959. Before joining Amoco, he was northern regional manager for Indiana Standard, in Milwaukee.

C. H. Coughlin R. V. Nugent

R. VANCE NUGENT has been appointed to the newly created position of purchasing agent for Magnolia Pipe Line Co., affiliate of Mobil Oil Co., with headquarters in Dallas. He was purchasing agent for Mobil Oil's central pipelines division, at Wichita, Kan., before it was consolidated with Magnolia.

TOM DURRANCE is the new manager of Arabian American Oil Co.'s public relations department, and assistant to vice-president **H. O. Thompson** in the conduct of public relations activities for Aramco and Trans-Arabian Pipeline Co., with headquarters in Dhahran. He was formerly manager of public relations for Texaco Inc., in New York. In his new position, Durrance succeeds **W. Jack Butler**, who has resigned to accept a new position.

ROY B. ALCOTT is the new employee relations manager of Tidewater Oil Co.'s 14-state eastern division, with headquarters in New York. Alcott, who was formerly employee relations manager of Tidewater's southern division, succeeds the late **William O. Barnes.**

R. B. Alcott J. W. Bateman

JAMES W. BATEMAN moves up to the newly created position of assistant manager of Continental Oil Co.'s Lake Charles (La.) refinery. Bateman, who joined Conoco, at Houston, in 1952, was named assistant director, coordinating and planning, there, last year. He has been responsible for improvements in Conoco refinery processes, economic evaluations, and various technical phases of manufacturing operations.

JOHN R. LEWIS has joined the Washington (D.C.) staff of the Mid-Continent Oil & Gas Assn. He was formerly proration engineer at Pan American Petroleum Corp.'s division office at Oklahoma City. During his career in the petroleum industry, Lewis also spent nine years in Washington representing Standard Oil Co. (Ind.), Pan Am's parent.

L. P. SMITH moves from Los Angeles to Denver as district purchasing and transportation supervisor for Gulf Oil Corp. He has been purchasing agent for Western Gulf Oil Co. in Los Angeles since 1953. In his new position, he replaces **W. T. Comfort**, who transfers to Midland, Tex., in the same position.

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DEPT/Service & Equipment Companies

F. A. W. ANGER has been promoted to vice-president of manufacturing for the Axelson Division of U.S. Industries, Inc. He has been director of manufacturing for Axelson's Los Angeles plant since he joined the company in 1955. In his new position, he will be responsible for manufacturing at the Los Angeles and St. Louis plants. **Robert Duff Clark** has joined the company as director of research and development. He was most recently chief engineer for Clary Dynamics, which serves the missile industry. He has also been vice-president of engineering for Page Oil Tools, Inc., and mechanical engineer and metallurgist in the research department of Union Oil Co. of California.

F. A. W. Anger

B. Wood

BILL WOOD is manager of Jones & Laughlin Supply Division's new central region, with responsibility for sales in Kansas and Oklahoma. He will continue to have offices in Tulsa, where he has been manager of the Tulsa city sales office since 1957. Before that, he was assistant district sales manager at Wichita Falls, Tex.

W. T. (Dub) KELLY becomes area sales manager in Houston for Milwhite Mud Sales Co. Kelly joined Milwhite's sales staff in 1958.

W. L. HORNER has resigned as vice-president of Core Laboratories, Inc., Dallas, to join **George H. Jett**, Shreveport independent, in a management-interest position. Jett is an owner of Alabama's Citronelle field where a unitized secondary recovery project is being developed. Horner, who will have headquarters in Mobile, Ala., continues with Core as a special consultant. At the same time, **H. M. Shearin** was promoted from assistant manager to manager of domestic reservoir engineering and consulting operations for Core. **W. P. Schultz** was named to manage Core's foreign operations.

ROBERT R. BURNS is manager of the newly created commercial development department of Nalco Chemical Co., Chicago. The new department will search out and evaluate potential markets and products and direct the marketing of these products until they are ready to be handed over to an operating division. Burns was formerly product manager for industrial process chemicals in the industrial division. **Jerome Green**, who is presently on the staff of Nalco's Clearing (Ill.) laboratories, will also be assigned to the new department.

FRANK SANFORD, JR. and **RALPH BARTOW** are new tubular sales representatives for Republic Supply Co. Sanford will continue to be located at Houston, where he was formerly sales office representative for Republic. Bartow will work under **Don Collins**, Republic vice-president at Tulsa. Bartow was associated with National Supply Co. and Black, Sivalls & Bryson, Inc., before joining Republic recently.

J. B. Vaughan

W. D. Smith

J. B. VAUGHAN is president, and **W. D. SMITH** vice-president, of Star Perforators, Inc., Ft. Worth, a newly formed company offering a complete line of perforating radioactivity logging, and associated wireline services to the oil industry. Vaughan, who will be in charge of sales and administration, has been vice-president of sales for Welex, Inc., for the past seven years. Smith, who was manager of research and engineering for Welex, will be in charge of the new company's operations and engineering.

ROBERT L. SWINNEY, formerly sales engineer in Chicago for Babcock & Wilcox Co., heads its new boiler division district sales office, in Denver. The new office will take over steam generating equipment sales and service which were formerly han-

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dled by Stearns-Roger Mfg. Co., before termination of its sales agency agreement with the boiler division. Swinney's new sales territory includes Colorado, Montana, New Mexico, Utah, Wyoming, and portions of Idaho, Nebraska, Nevada, South Dakota, and Texas.

JOHN E. O'CONNOR has been appointed heat transfer specialist in the Cleveland district for the Wolverine Tube Division of Calumet & Hecla, Inc. He joined Wolverine Tube as New York sales representative in 1958. His new sales territory will include Michigan, Ohio, western Pennsylvania, eastern Indiana, northern Kentucky, and the western section of West Virginia.

C. E. Hall

W. J. Slaughter

M. L. McLafferty

C. M. Ferguson

G. W. Hendricks

R. H. White

PARKERSBURG RIG & REEL CO. has established six new domestic sales divisions. Managers of the new divisions, and their headquarters, are: **C. E. Hall**, California division, Los Angeles; **W. J. Slaughter**, Rocky Mountain division, Denver; **M. L. McLafferty**, Canadian division, Calgary; **C. M. Ferguson**, Mid-Continent division, Tulsa; **R. H. White**, West Texas-New Mexico division, Midland; and **G. W. Hendricks**, North Texas-North Louisiana division, Dallas. **J. M. Baldridge** continues as manager of the Gulf Coast division, in Houston, and **L. R. Latimer** continues as manager of the eastern division, in Parkersburg, W. Va.

F. L. Friedli

R. D. Hamilton

FRANK L. FRIEDLI has been named manager, and **REED D. HAMILTON** assistant manager, of Cooper-Bessemer Corp.'s En-Tronic Controls division, in Mt. Vernon, Ohio. The division was formed in 1957 for the production of automation systems for use in the fields of air and gas compression. In his new position, Friedli will have primary responsibility for the division's sales activities, and Hamilton for its engineering activities. Friedli, with the company since 1940, was most recently assistant sales manager for special projects. Hamilton began his association with Cooper-Bessemer during World War II as a naval officer in charge of the diesel engine shop and parts. He was most recently manager of engineering for Cooper-Bessemer's electronics and controls department.

EMERSON H. CLARK moves up from general manager to vice-president of Engineering-Construction Co., Tulsa pipeline construction company, a subsidiary of Helmerich & Payne, Inc. In his new position, he succeeds **Daniel R. Toll**, who will serve as chairman of Ecco's executive committee.

L. D. (Jack) BOUGHTON, formerly manager at Lafayette, La. for the Dowell Division of Dow Chemical Co., moves up to district engineer at New Orleans. He will supervise all engineering work on the Gulf Coast and all field research work, as well as act as liaison between the district field offices and the company's research department in Tulsa. **J. O. Hendrick**, formerly district sales engineer at New Orleans, succeeds Boughton in Lafayette, and **B. J. Ladd**, formerly in charge of sales at Houma, La., succeeds Hendrick at New Orleans. **J. C. Phillipi** transfers from Lake Charles, La., to Lafayette as area sales engineer, and **Nolan Pierson**, formerly service engineer at Hattiesburg, Miss., is now sales engineer at Dowell's Lafayette Oil Center offices. **Ed Dronette** and **J. E. Herbst**, formerly service engineers, have been promoted to sales engineers at Houma. **L. T. McFarlin**, Lafayette, **T. L. Morris** and **R. J. Boudreaux**, Houma, and **R. C. Jaynes**, Hattiesburg, have been promoted to service engineers.

W. E. LULEY is the new assistant to the general sales manager of the Buflovak Equipment Division of Blaw-Knox Co., with offices in Buffalo, N. Y. Luley, who joined the division in 1951, at Buffalo, transferred to the Chicago office in 1958. **K. C. Slowman** succeeds him as sales engineer at the Chicago office. Slowman joined the division last year as a sales engineer at Buffalo. **E. L. Teller** has been named sales engineer for gas equipment, in the Buffalo office. He joined the division 1956 as a project engineer in the gas cleaner department.

RUSSELL D. HENKE has been promoted to vice-president and assistant manager of Merla Tool Corp., Dallas oil tool and equipment manufacturer. Henke, who joined the company in 1942, will also continue to serve as company purchasing agent.

R. H. NEUSTAEDTER is the new location manager at Gainesville, Tex., for Schlumberger Well Surveying Corp., and **B. F. Irvin** is the new sales engineer at Shawnee, Okla. Neustaedter was formerly sales engineer at Tyler, Tex., and Irvin was field engineer general in Shawnee.

CHARLES KELSEY, president of International Gas Equipment Co., Celeveland, heads the new Gasequip Group, a central marketing and management organization for distribution of noncompetitive compressed gas equipment outside North America. The new group has established headquarters at the Cleveland-Hopkins Airport. **Ramon Rodriguez**, formerly Latin American sales manager for another Cleveland manufacturer, is also associated with Gasequip.

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Is Time Running Out for Oil?

THERE'S A REASONABLE CHANCE that the oil industry is going to wake up one of these fine mornings, and "discover" that Congress has accepted a coal industry proposal for a committee to evaluate and determine the country's need for a national fuels policy.

The odds, at least, seem to be improving weekly.

If it does happen, oil men will have only themselves to blame. For it will simply be another case where they failed to put out a persistent brush fire before the flames got out of hand. And, instead of squelching a small fire relatively easily, they'll have to contend with a big conflagration that will be more difficult to fight, and more costly, in more ways than one, to extinguish.

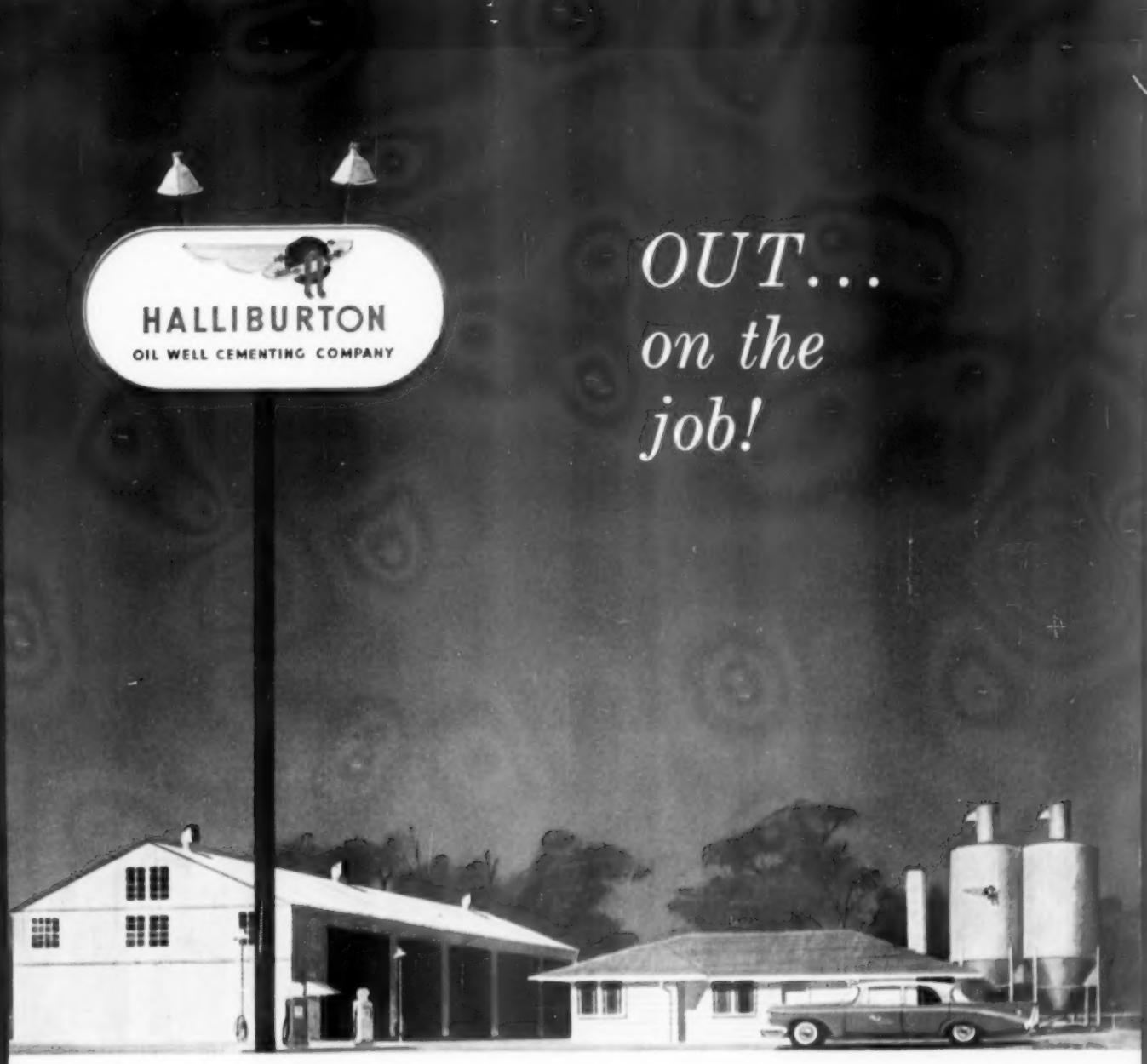
Frank M. Porter, president of the American Petroleum Institute, sounded the alert for industry action last November. Mincing no words, he stressed that coal's determined objective is legislation that would stake out certain markets as its private preserve. No ifs, ands, or buts about it—just end-use controls on fuels, and more federal regimentation.

Despite the API chief's call for concerted action, little apparently has been done by the industry as a whole.

OIL COMPANY REPRESENTATIVES in Washington concede now that the drive mounted by the National Coal Policy Conference is gaining momentum in Congress; that it's getting more difficult all the time to muster opposition to the proposal which, although only a "study," is really the keystone of the whole project. It's even said that some oil-state senators and representatives are among the latest converts to the study suggestion.

The coal campaign is becoming more aggressive, more insidious. The latest maneuver was the publication last week of an 18-page pamphlet which endeavors to scotch oil industry objections. The pamphlet stoutly denies that any congressional committee would be slanted to favor coal. In fact, it says demurely, "this is an insult to the integrity and intelligence of Congress."

COAL'S PAMPHLET WON'T FOOL knowledgeable oil men. But it will scratch a lot of congressmen's backs. The point of all this, however, is that time seems to be running out for oil. The industry desperately needs an industry spokesman in Washington. And it also needs an industry fire-fighting apparatus that will function the year around. It's not too late yet—but, as the saying goes, "tempus sure is fugiting."



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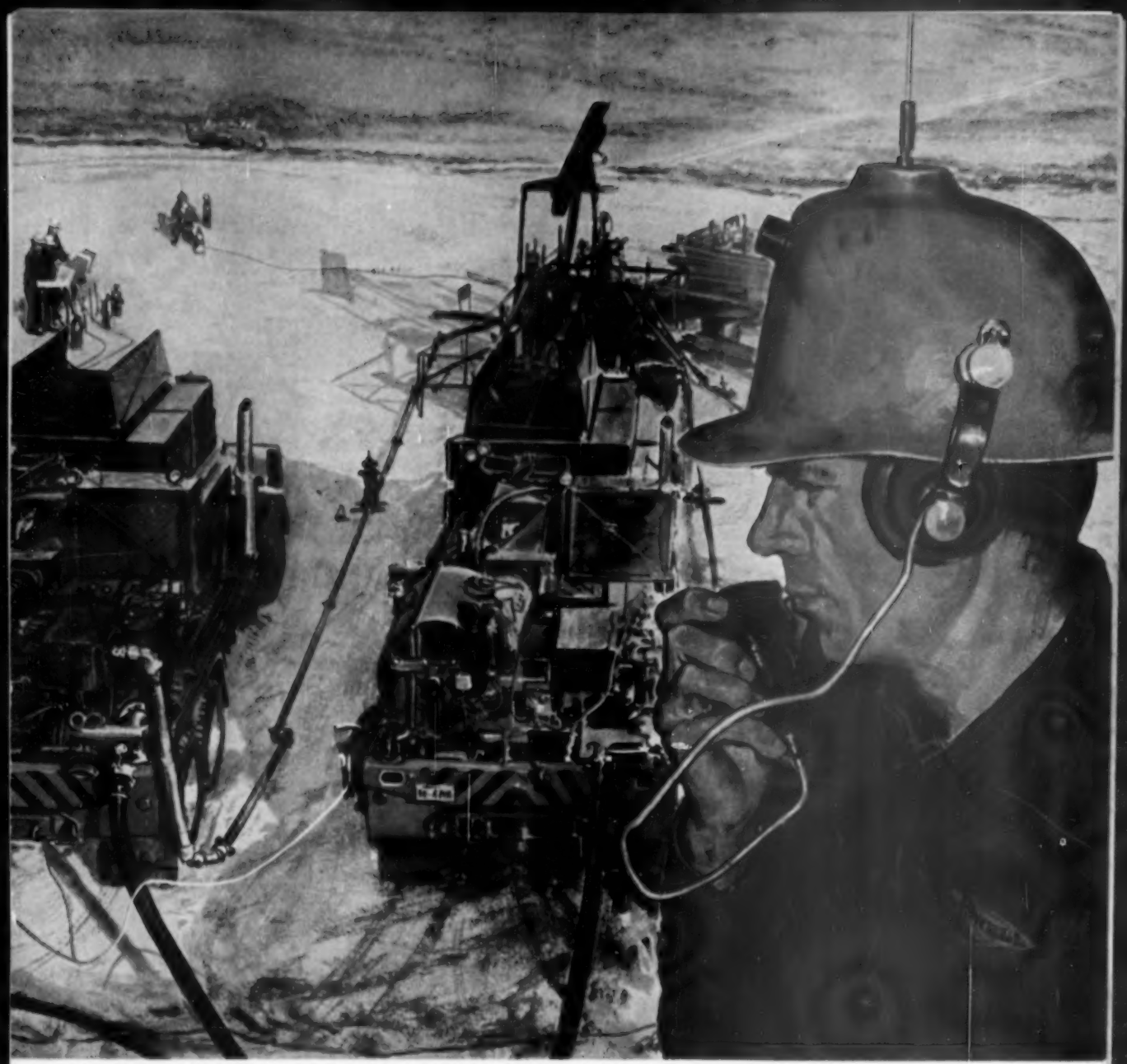

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